DOCUMENT RESUME

ED 318 482 IR 053 142

AUTHOR Werking, Richard Hume
TITLE Collection Growth, Expenditures, and Automation in Academic Libraries: A Preliminary Inquiry.
SPONS AGENCY Council on Library Resources, Inc., Washington, D.C.
PUB DATE 15 Nov 89
NOTE 112p.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160) -- Statistical Data (110)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Academic Libraries; Comparative Analysis; Higher Education; *Library Automation; Library Collection Development; *Library Expenditures; *Library Statistics; Library Surveys; Operating Expenses; Questionnaires; Research Libraries; *Trend Analysis
IDENTIFIERS Association of Research Libraries; Bowdoin List Libraries

ABSTRACT

A study was conducted to examine library data and trends among a group of 42 liberal arts colleges known as the "Bowdoin List." Questionnaires were completed and returned by 35 of the colleges, and interviews were conducted with the library directors at 22 of the colleges. The first of 10 sections in this report presents the statistical data from the Bowdoin List libraries and compares them with Association of Research Libraries (ARL) data. Sections 2 through 5 examine data related to various categories of expenditures for both groups of libraries, and section 6 provides information about the reported state of automation in the college libraries. Information from the interviews with library directors is presented in section 7, and conclusions and acknowledgements in sections 8 and 9. The final portions contain the notes and appendixes, which include a copy of the questionnaire and data from the study. Major findings suggest that: (1) the rule that academic libraries' collections double every 16 years is highly suspect; (2) the time honored 60-30-10 breakdown of salaries, materials, and "other" is no longer the norm; (3) prices for books and periodicals grew more rapidly from 1967 to 1977 than for the ensuing decade; (4) expenditures for both college and academic libraries have exceeded the increases in both the Consumer Price Index and the Higher Education Price Index; (5) the funding for online systems most often comes from outside the library's annual budget; and (6) all directors interviewed believe that the advantages of automation outweigh the disadvantages. (30 references) (SD)

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COLLECTION GROWTH, EXPENDITURES, AND AUTOMATION IN ACADEMIC LIBRARIES: A PRELIMINARY INQUIRY

By

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November 15, 1989

The support of the Council on Library Resources is gratefully acknowledged.

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Collection Growth, Expenditures, and Automation in Academic Libraries:
A Preliminary Inquiry

"That most librarians dislike statistical records is patent. But without figures capable of intelligent interpretation, we are seriously handicapped indeed. William Thomas Kelvin expressed the need adequately and succinctly, '...when you can measure whatever you are talking about, and express it in numbers, you know something about it.'"

--Lawrence S. Thompson, 1945

"It is essential that more be known about the present use and management of library budgets."

--Warren J. Haas, 1986 (1)

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SUMMARY OF MAJOR FINDINGS

The following seem to me to be the major and the most interesting findings of this study, as of early November 1989.

Between 1967 and 1987, about 1/4 of the college libraries in this study doubled the size of their collections; over the same period, about half the libraries belonging to the Association of Research Libraries grew by at least that same rate. Conversely, 3/4 of these college libraries and half the ARL libraries failed to double the size of their collections in this 20-year period. It would seem, therefore, that there are by now enough exceptions to the "doubling every 16 years" rule for academic libraries to render it highly suspect as a general expectation in the last years of the 20th century.

The time-honored "60-30-10" breakdown of academic library expenditures (60% for salaries and wages, 30% for materials, 10% for "other") is no longer the norm. For the college libraries in this study, the proportions are closer to 40-40-20, while the figure for the ARL libraries approximates 50-35-15.

Notwithstanding the concern expressed in recent years about the soaring prices of library books and periodicals, the prices of books and periodicals published in the United States grew much more rapidly between 1967 and 1977 than during the ensuing decade.

A corollary finding is that, for the most part, the materials expenditures of the college libraries included in this study kept pace with those price increases.

Indeed, expenditures for materials as a percentage of total expenditures have risen in the college libraries over the last twenty years. They have declined in the research libraries over the same period.

The increase in total expenditures for these college libraries and for the ARL libraries from the 1960s to the 1980s have significantly exceeded the increases in both the Consumer Price Index and the Higher Education Price

Index, between 1977 and 1987 as well as between 1967 and 1977. The college libraries have fared better than the ARL libraries. This phenomenon is likely related to the competition among colleges and universities for better students and faculty, and for enhanced reputations.

Beginning with OCLC, online computerized applications have been adopted by this group of college libraries during the past two decades. Yet it has been only since the mid-1980s that a significant number of them have installed online public catalogs and have automated other functions.

At these colleges, the funding for online systems has come from outside the library's annual budget, more often than not from outside the college in the form of gifts or foundation grants. For only a small minority of these college libraries have automation costs been borne from within the library's budget to a significant extent.

Many of the college library directors I interviewed anticipate that automation will result in a greater amount of their librarians' involvement with students.

Not one of these directors believed that we yet are entering a time of the "no-growth" library collection heralded several years ago by Daniel Gore.(2)

All of the directors interviewed believed that the advantages of library automation outweigh any disadvantages.

The directors who were interviewed were almost evenly split when asked if they considered the changes taking place in college libraries to be fundamental.

INTRODUCTION

Generalizations about academic libraries in the United States are frequently based on data from or experiences in those libraries which are members of the Association of Research Libraries. In order to examine data about collection growth, expenditures, and automation, I wanted to give most of my attention to another group of libraries which have collected data and shared them with one another for more than twenty years. These are the schools on the so-called "Bowdoin List" of liberal arts college libraries, a group taking its name from the institution whose library director has compiled the statistics since 1967. Examining data and trends among these college libraries should be useful not only in itself, but also in the prospect of carefully generalizing about other groups of academic libraries, and in comparing trends with the ARL libraries. In time, perhaps, other researchers will undertake studies of other groups of academic libraries, which will lessen our dependence on the ARL Statistics when we wish to generalize about aspects of academic librarianship.

This report is divided into several parts. Section I presents the statistical data from the Bowdoin List libraries and compares them with ARL data, both to illustrate and to serve as the basis for discussing significant trends in two important sectors of academic librarianship. Sections II through V examine data related to various categories of expenditures, both for the ARL and the college libraries, and Section VI provides information about the reported state of automation in the college libraries. Section VII contains information about my interviews with the library directors at twenty-two colleges; Sections VIII and IX contain my conclusions and acknowledgements, respectively; while the final portions include the notes and appendices.

The "Bowdoin List" Libraries

From 1943 until 1960, the Association of College and Research Libraries published library statistics for colleges and universities. The statistics

for 1958/59, published in 1960, comprised the last such compilation, as ACRL turned the task over to the federal government and the HEGIS reports.(3) Soon afterwards, in 1962, the Association of Research Libraries began the annual publication of its members' statistics, and five years afterwards a group of college libraries began to share their statistics with one another.(4)

In 1967, Richard Harwell, Librarian at Bowdoin College in Brunswick, Maine, prepared a list of 37 college libraries from which he solicited annual statistics, to compile and share with the contributors. The first "Bowdoin List" of library statistics covered the 1966/67 academic year.(5) It has been continued annually ever since, with Arthur Monke assuming responsibility for its compilation after he succeeded Harwell as director at Bowdoin. Over the years the list grew to include 42 institutions. (Appendix A identifies the Bowdoin List institutions.)

The colleges on the Bowdoin List are widely recognized as among the most prestigious liberal arts colleges in the country. They are all private institutions, are primarily undergraduate, exercise a high degree of selectivity in admissions, and are nonsectarian. They are also relatively small; in the first year of the Bowdoin List, enrollments ranged from 1,865 at the largest school to 842 at the smallest, with a median of 1,267, while twenty years later the range was between 3,453 (for Bucknell, which had not been on the list at the outset) to 479, with a median of 1,532. As one director commented to me, "it is not an objectively determined list, but it is a very useful list, convincing to administrators and faculty."

Thus the Bowdoin List college libraries constitute a fairly homogeneous, self-identified group. No attempt is made here to claim that they are "typical" academic or college libraries. Studies of groups of libraries in addition to those which are members of the Association of Research Libraries, the Bowdoin List, and the relatively new "ACRL University Libraries" list would likely give us a fuller understanding of the various sectors in academic librarianship.

Methodologies

After securing a complete set of the Bowdoin List data since 1965/67, I prepared a data sheet for each library, filling in for each the collection size, expenditures for salaries and wages, for materials, total expenditures, "other" expenditures (the total less the sum of salaries/wages and materials), and for size of staff.(6) I also prepared a questionnaire to elicit any additions or corrections to the data (I would receive a substantial amount of each), as well as information about: how various expenditure categories were reported; the status of automation or plans for automation; how automation was being financed; and how the directors felt about the shifts in categories of expenditures. (See Appendix B.)

After "piloting" the survey with several library directors and other individuals, I sent it to the directors of the 42 Bowdoin List libraries. Thirty-five were returned, for a response rate of 83%; respondents are identified in Appendix A.

In addition to the survey, I received a considerable amount of information when I visited twenty-two of the colleges on four separate trips and interviewed the library directors. It is evidence of their willingness to be helpful, and perhaps to some extent of their interest in my project, that not a single director declined to be interviewed or was unable to receive me because of scheduling conflicts. Two of the institutions I visited, Depauw and St. Olaf, are not members of the Bowdoin List group, but as liberal arts colleges and as libraries they have a great deal in common with those on the list. Appendix C lists the libraries which I visited and whose directors I interviewed.

To describe statistically the "typical" library for any given variable (rate of collection growth, materials expenditures as a proportion of the total, etc.), I chose to use as the measure of central tendency the median, that point on an arrayed scale where half the observations fall above it and half below. This has been the method used by the Association of Research Libraries for many years. I have also supplemented the median with the "interquartile ranges," those points which lie halfway in each direction

between the median and the farthest observation. Hence readers can quickly determine the values which incorporate 3/4 of the observations, from an (unknown) end point value through the value expressed by the quartile on the opposite side of the median. Complete data for each of the tables may be found in Appendix D.

Because I wished to include the 1960s within the coverage of this study and because neither the Bowdoin List nor the ARL Statistics existed at the beginning of that decade, I had to turn to other sources of information in order to capture the data for 1960/61. For the colleges I relied on the American Library Directory, 1962, and obtained at least partial data for 33 of the 42 Bowdoin List college libraries for 1960/61.(7) In that same volume, five other colleges on the list reported data for 1959/60 and four for 1961/62; these were unusable. For information about collection size among the research libraries I used a list of the 42 largest university libraries in the country, compiled by staff at Princeton University and entitled "Statistics for College and University Libraries for the Fiscal Year 1960/61."(8) Since total library expenditures were not provided in the Princeton statistics, my report contains no 1960/61 financial data for the 42 research libraries. (Appendix D, Table IF lists the research libraries covered in the Princeton data, while Appendix E lists the ARL libraries compared for the two decades beginning in 1967.)

A Cautionary Note About Library Statistics

Library statistics can be misleading and need to be approached cautiously. Those used in this report are certainly no exception. More than a decade ago, George Piternick offered an observation with which I quite concur: "Statistical inference always involves risk; it is essential, therefore, that any inferences be made with much care and some humility."(9)

One problem with statistics is the likelihood of errors, ranging from minor and occasional to major and frequent. These can occur at the time of the initial counting, or when first recording the count, or when the number is transcribed at any of several stages, including the final compilation within

the library or the compilation by the organization or individual issuing the statistics for a group of libraries. For example, in one edition of the ARL Statistics a library's expenditures are recorded as follows: $738,188 for materials and binding; $1,088,292 for salaries and wages; $34,819 for other operating expenditures; and a total expenditures figure of $1,123,101.(10) Clearly, an error was made somewhere. When errors are noticed subsequent to publication, errata sheets sometimes are issued.

In addition to errors is the more subtle issue of definitions and categories, over space and over time. Within a group of libraries there will be, at least initially, different opinions about what kinds of items should be included in a given category. For instance, in reporting the number of volumes held, should the figure be the bibliographic or the physical count? Should the total reflect just the number of books and bound periodicals, or should it also cover government documents, microform pieces or volume equivalents, or other formats? Should the figure for total expenditures include fringe benefits (which appear on the library's budget sheets at some institutions but not at others)? If so, should the fringe benefits be included as a portion of the reported expenditures for salaries and wages? Not only will these practices of recording and reporting data vary somewhat between libraries; over a period of time they may well vary even at the same library, either with changes in administrators or the same administrator deciding (or complying with the request of the extramural compiler) to report the figures differently.

The college library statistics, like their well-studied ARL counterparts, do reflect some differences of definition. The data from several of the libraries over time have shown considerable fluctuations in the numbers of volumes reported, which reflects, at least in part, not only weeding (a practice rarely found in research libraries) but also redefinition of what to include in the volume count. Moreover, of the 34 library directors responding to a question about reporting fringe benefits, 17 do not presently include fringes in total expenditures, while of those 17 who do, 7 report them as part of the salaries and wages expenditures (and thereby obtain a larger figure for that category of expenditure.) There are also significant differences between institutions in terms of what benefits they offer. The important point to

make here, however, is that few of the libraries appear to have changed the way they handled fringe benefits or student wages between 1967 and 1987, and hence it is doubtful that such changes have had much impact on the trends described in this report. Beginning with the 1987/88 compilation, however, the Bowdoin List library directors were asked by the compiler of the statistics to include their student wages as a portion of their regular salaries and wages, with the result that salaries/wages as a proportion of total expenditures rose from a median of 42.5% in 1986/87 to 44% in 1987/88, while the "other" category declined from 18% to 17.5%; materials remained unchanged at 38%.

One change I made involved the number of staff reported for the ARL libraries for some of the years. Before 1974/75, the ARL statistics for staff excluded student workers; in that year they included them and have continued to do so. The Bowdoin List data have always excluded student workers from the staff count, capturing their contribution in an "hours of student assistance" category. Hence for earlier years of the ARL statistics, I have added FTE student workers to the staff figures, obtaining an adjusted figure that makes those years comparable with later ones.(11)

A common problem in analyzing data from a group of institutions over a period of time is that frequently in one year some institutions are included and in another year they are not. The result in such a circumstance is that, in effect, one is comparing different groups of institutions. Thus for each the tables in this report I have included data for an institution only if that institution's data are also included for each of the years being compared in that table. One consequence is that I am not including any library which joined ARL after 1967, which can have an impact on the results one obtains and perhaps on the conclusions one reaches. For example, the median total expenditures figure for 68 ARL libraries grew by 463% between 1967 and 1987. When the 1967 median expenditure is compared to the median expenditure of all 106 ARL libraries in 1987, the increase is only 377%. There were 70 ARL libraries in 1967, 69 of which have retained that status.

I. COLLECTION GROWTH

It has been 45 years since the appearance of Fremont Rider's The Scholar and the Future of the Research Library, in which the author observed that research libraries seem to double every sixteen years or so. Although virtually all of the subsequent literature on collection growth has focused on the larger university libraries, Rider himself was not so limiting, notwithstanding his book's title. In the book, the first table records collection growth in ten American men's college libraries (including Wesleyan, Amherst, Bowdoin, and the like), while the second provides similar information for five libraries at American women's colleges (Smith, Vassar, Wellesley, Bryn Mawr, Mt. Holyoke); thirteen of these fifteen are today Bowdoin List libraries. And just several pages later the author stated categorically: "In fact, this may be asserted as almost axiomatic: unless a college or university is willing to be stagnant, unless it is willing not to maintain its place in the steady flow of educational development, it has to double its library in size every sixteen years, or thereabouts."(12) By this exacting standard, a number of institutions have fallen short.

Data on collection growth between 1967 and 1987 were obtained for 38 of the Bowdoin List libraries, by taking those data from the annual compilations and also by receiving additions and corrections from many of the 35 directors who responded to the survey. These libraries ranged in size in 1967 from 636,437 volumes for the largest to 92,892 for the smallest; by 1987, the figures are 996,222 and 151,989 respectively. Table IA provides a summary of the size of collections.

Table IA: Number of Volumes, 1967 to 1987, 38 College Libraries

	1966/67	1976/77	1986/87
Q_3	317,342	417,920	530,327
Median	222,051	309,299	395,021
Q_1	173,172	231,017	309,115

* * * *

In the twenty years between 1967 and 1987, 10 of the 38 college libraries doubled or more than doubled the size of their collections (including the library whose collection grew by 99%). As shown below, the median of the increase in collection size over the twenty-year period was 74.5%. For the first of the two decades, the growth was slightly greater than in the second, with median percentage increases of 33.5% and 30% respectively. Table IB summarizes the data.

Table IB: Percentage Increases in Number of Volumes 1967 to 1987, 38 College Libraries

	1967-77	1977-87	1967-87
Q_3	49.5	35	97
Median	33.5	30	74.5
Q_1	26	18	54.5

(Note: For this and subsequent tables showing percentage increases, the procedures followed were the same: calculating the percentage increase for each library for the indicated period; arraying the percentages in descending order for each period; identifying the median of the array, and the third and

first quartiles. When a mid-point falls between two data points, the value is reported as the average of those two points. By comparison, the median collection size, as opposed to the median percentage of growth, rose by 78% over the twenty years, 39% in the first decade and 28% in the second.)

* * * *

Calculating from the beginning of the 1960s adds considerably to the number of college libraries which at least double the size of their collections by 1987. If one counts two libraries that increased by 98% and 99%, there are 21 of them, or about 2/3. (Data for six of the 38 libraries described in Tables IA and IB were not available for 1960/61.)

Table IC: Number of Volumes, 1961, and Percentage Increases in Number of Volumes, 1961 to 1987, 32 College Libraries

	Vols 1961	% Incr 1961-67	% Incr 1967-77	% Incr 1977-87	% Incr 1967-87	% Incr 1961-87
Q_3	258,556	41	46	34	93	165
Median	184,500	22.5	32.5	28.5	73.5	124
Q_1	134,160	15	25	19	54	82

* * * *

Naturally, research libraries add many more volumes each year than do college libraries. As shown by these data, their collections also have tended to grow at a more rapid rate, a result which is, of course, more difficult with a larger number of volumes on hand at the beginning of the measurement period. (As one college library director told me, "Of course we doubled in size over that period of time; we didn't have very much to start with.") Of 69 ARL libraries, 36 grew by 100% or more between 1967 and 1987, while 33 did not. Tables D and E provide summaries.

Table ID: Number of Volumes, 1967 to 1987, 69 ARL Libraries

	1966/67	1976/77	1986/87
Q_3	1,863,233	2,910,461	3,881,945
Median	1,213,855	1,852,841	2,484,152
Q_1	982,860	1,446,011	1,950,400

Table IE: Percentage Increases in Number of Volumes 1967 to 1987, 69 ARL Libraries

	1967-77	1977-87	1967-87
Q_3	68	42	125
Median	52	32	102
Q_1	33	25	69

The increase between 1967 and 1977 was considerably greater than in the subsequent decade.

* * * *

Going back to 1960/61, and to a smaller group of the 42 largest research libraries, all but five of them doubled the size of their collections by 1986/87; of those five, Harvard grew by 65%, Yale by 87%, and the other three by between 91% and 95%.

Table IF: Number of Volumes, 1961, and Percentage Increases in Number of Volumes 1961 to 1987, 42 Research Libraries

	Vols 1961	% Incr 1961-67	% Incr 1967-77	% Incr 1977-87	% Incr 1967-87	% Incr 1961-87
Q_3	1,652,521	40	56	38	110	191.5
Median	1,113,122	32.5	48	27.5	88.5	161.5
Q_1	911,248	25	32.5	24	66	120

It is worth noting that the collections of the 10 college libraries which at least doubled between 1967 and 1987 (about 1/4) grew at a faster rate than 33 of the research libraries (about half) during the same period. For 1961 to 1987, the 10 fastest-growing college library collections (about 1/3) increased faster than 20 of the research library collections (about half). (For details, see Appendix D.)

II. BUDGET -- "OTHER" EXPENDITURES

Library expenditures have for many years been divided into three general categories: materials (traditionally--books, periodicals, usually binding, and often "other materials"), salaries and wages, and "other" (everything else). Conventional wisdom has been that the normal division among the three categories was "60-30-10": 60% for salaries and wages; 30% for materials; and 10% for "other."(13) This third aggregation has long been a catch-all for supplies of various kinds, non-capital equipment and equipment maintenance, telephone charges, travel expenses, interlibrary loan charges, and the like. More recently it has (usually) included monies for payment to bibliographic utilities. Because many libraries report their fringe benefits and student wages expenditures but do not include them under the "salaries and wages" category, these become, de facto, part of the "other" category of expenses.

Still the smallest of the three categories, "other" expenditures in the Bowdoin List colleges in 1986/87 ranged from a high of $623,670 (and 29% of total expenditures) to a low of $38,079 (and 7%). Not surprisingly, perhaps, this is the category which over the course of the last two decades has experienced the largest relative growth, as shown in Table IIA. In 1966/67 the median college library spent 8% of its budget on costs other than salaries and wages or materials; twenty years later, it was spending 18%.

Table IIA: Percentage of Total Expenditures Devoted to "Other," 1967 to 1987, 38 College Libraries

	1966/67	1976/77	1986/87
Q_3	11	17.5	21.5
Median	8	14	18
Q_1	4.5	9	11.5

* * * *

A subset of this group of the college libraries for which there are 1960/61 data demonstrates the same overall trend.

Table IIB: Percentage of Total Expenditures Devoted to "Other," 1961 to 1987, 28 College Libraries

	1960/61	1966/67	1976/77	1986/87
Q_3	13	13	18	22
Median	9	8	15	18
Q_1	6	6	9	12

* * * *

As shown below in Table IIC, the research libraries display this same general trend, rising from a median expenditure of 6% for "other" in 1966/67 to 13% in 1986/87. Because of differences between the two groups of libraries in terms of what is included in which expenditure categories, readers should be very cautious about comparing this 13% figure with the 18% figure for the median college library. What is significant, and common to both groups, is the growth of "other" as a proportion of the total.

Table IIC: Percentage of Total Expenditures Devoted to "Other," 1967 to 1987, 67 ARL Libraries

	1966/67	1976/77	1986/87
Q_3	8	10	17
Med.	6	8	13
Q_1	5	6	11

(Because the 1960/61 data for the research libraries did not include data on "total expenditures," this report does not provide a second table covering these 42 libraries in the several sections dealing with expenditures.)

* * * *

If significantly larger portions of library expenditures are going to "other," they must be coming from one or both of the remaining two budget categories. The chief contributor, and the only one in the case of the college libraries, has been the salaries and wages category.

III. BUDGET -- SALARIES AND WAGES

Although still the largest of the three categories, salaries and wages has experienced a sharp decline as a percentage of total expenditures. Between 1967 and 1987, among the Bowdoin List libraries the median expenditure for salaries and wages fell from 55% to 42.5%, as shown in Table IIIA.

Table IIIA: Salaries and Wages as a Percentage of Total Expenditures, 1967 to 1987, 38 College Libraries

	1966/67	1976/77	1986/87
Q_3	60.5	51.5	49.5
Median	55.5	47	42.5
Q_1	51	44	38

* * * *

Data from the Bowdoin List subset which includes 1960/61 indicate that for the colleges this trend began earlier. In fact, the median library in this group matched exactly the 60% funding level for salaries and wages found in the 60-30-10 guideline, as shown below.

Table IIIB: Salaries and Wages As A Percentage of Total Expenditures, 1961 to 1987, 28 College Libraries

	1960/61	1966/67	1976/77	1986/87
Q_3	64	60	51	48
Med.	60	55.5	46	43
Q_1	51	50	44	38

* * * *

The picture for the ARL libraries likewise shows a decline in the salaries and wages percentage since the 1960s, but not nearly so great a decline, and one which occurred only after an increase between the mid-1960s and the mid-70s. More information is provided in Table IIIC.

Table IIIC: Salaries and Wages as a Percentage of Total Expenditures, 1967 to 1987, 68 ARL Libraries

	1966/67	1976/77	1986/87
Q_3	60	63	54
Median	55	58	51
Q_1	52	53	47

* * * *

Although by 1987 both the research libraries and the college libraries were spending a smaller proportion (and for the colleges a significantly smaller proportion) of their budgets on salaries and wages, they were not spending those dollars on fewer people. Both sets of libraries experienced growth in the number of employees, the median college library by 25% and the median ARL library by some 37%. Consequently, although the numbers of staff in ARL libraries are much larger than in the college libraries, the rate of increase in the ARL libraries has been 50% greater than that in the colleges.

Table IIID: Number of Staff, 1967 to 1987, 35 College Libraries

	1966/67		1976/77		1986/87	
	Libns.	Total	Libns.	Total	Libns.	Total
Q_3	9.8	23.4	10	25.6	11.8	32.5
Med.	7	17.5	8	22	10	23.7
Q_1	5	11.5	5.9	12.9	6.4	17.3

(Note: Numbers are for full-time equivalent staff. Data for the colleges do not include student workers. Since there are data for only 16 of the college libraries for 1960/61 and each of the other years reported in these tables, no attempt is made to compare college library staffing in 1960/61 with subsequent years.)

Table IIIE: Percentage Increases in Staff 1967 to 1987, 35 College Libraries

	1967-77		1977-87		1967-87	
	Libns.	Total	Libns.	Total	Libns.	Total
Q_3	41.5	38	27.5	23.5	71	70.5
Median	13	20	15	9	40	25
Q_1	-2	5.5	0	1	5.5	7.5

Table IIIF: Number of Staff, 1967 to 1987, 65 ARL Libraries

	1966/67		1976/77		1986/87	
	Libns.	Total	Libns.	Total	Libns.	Total
Q_3	85	312	104	406	113	428
Med.	64	213	73	262	87	321
Q_1	44	167	54	205	61	255

(Note: Numbers are for full-time equivalent staff. Data for the research libraries include student workers, calculated at 1800 hours per year equalling one full-time staff member. See ARL Statistics for 1966/67.)

Table IIIG: Percentage Increases in Staff 1967 to 1987, 65 ARL Libraries

	1967-77		1977-87		1967-87	
	Libns.	Total	Libns.	Total	Libns.	Total
Q_3	42	45	28	28	56	72
Median	13	19	10	14	30	37
Q_1	0	9	-2	4	7	22

IV. BUDGET -- MATERIALS EXPENDITURES

Thus far, for the "other" and the "salaries/wages" categories, both the college and the ARL libraries have exhibited the same general trends (albeit to varying degrees)--an increase in the first and a decline in the second. It is in the case of the third category, materials expenditures, that they part company.

For the colleges, the increase in the "other" category as a proportion of expenditures has come entirely from the reduction in the salaries/wages portion. Indeed, the materials expenditures portion has even witnessed an increase over the years, as seen below.

(The median amount expended for materials was $31,000 in 1960/61; $69,000 in 1966/67; $189,000 in 1976/77; and $520,000 in 1986/87 -- all rounded to the nearest thousand.)

Table IVA: Materials Expenditures as a Percentage of Total Expenditures, 1967 to 1987, 38 College Libraries

	1966/67	1976/77	1986/87
Q_3	40	42	43
Median	35.5	38	38
Q_1	31	35	35.5

(Note: All the data pertaining to "materials expenditures" reflect the inclusion of binding expenditures, which is the traditional approach. It is the one still used among the Bowdoin List libraries, and was used for the research libraries until the 1985-86 ARL Statistics.)

* * * *

The subset of college libraries with 1960/61 data shows the median library with materials expenditures accounting for 31% of the total in that year. When taken together with the information from Tables IIB and IIIB, the median library in each of the three groups shows 60% going toward salaries/wages, 30.5% for materials, and 9% for other, conforming almost exactly to the time-honored 60-30-10 breakdown.

Table IVB: Materials Expenditures as a Percentage of Total Expenditures, 1961 to 1987, 28 College Libraries

	1960/61	1966/67	1976/77	1986/87
Q_3	36	41	42	43
Median	30.5	34.5	37.5	38
Q_1	28	31	33	36

* * * *

The research libraries, on the other hand, show a decline over the years, with only a partial recovery between 1977 and 1987, as Table IVC demonstrates.

Table IVC: Materials Expenditures as a Percentage of Total Expenditures, 1967 to 1987, 68 ARL Libraries

	1966/67	1976/77	1986/87
Q_3	41	37	38
Median	38.5	32	34
Q_1	34	29	30

* * * *

Another way of looking at the growth of materials expenditures for the three sets of libraries is to compare it with increases in the prices of books and periodicals. The following three tables provide such a comparison.(14) They show that despite the concern expressed in recent years about the soaring prices of library books and periodicals, the prices of books and periodicals published in the United States grew much more rapidly between 1967 and 1977 than during the ensuing decade. Moreover, for the most part, the materials expenditures of these college libraries kept pace with those price increases, although they certainly fell behind the proliferation of book and journal publishing.

Table IVD: Percentage Increases in Materials Expenditures 1967 to 1987, 38 College Libraries

	1967-77	1977-87	1967-87
Q_3	213	187	719
Median	152.5	148	518.5
Q_1	96	112	390
U.S. Book Prices	130	86	325
U.S. Per. Prices	207	190	790

Table IVE: Percentage Increases in Materials Expenditures 1961 to 1987, 33 College Libraries

	1961-67	1967-77	1977-87	1961-87
Q_3	158	215	182	1828
Median	119	155	147	1399
Q_1	74	91	118	1019
U.S. Book Prices	44	130	86	513
U.S. Per. Prices	42	207	190	1168

Table IVF: Percentage Increases in Materials Expenditures 1967 to 1987, 68 ARL Libraries

	1967-77	1977-87	1967-87
Q_3	149	185	519
Median	104.5	160.5	406
Q_1	64	115	321
U.S. Book Prices	130	86	325
U.S. Per. Prices	207	190	790

For the twenty-year period and the 1967-77 decade, materials expenditures for the median college library rose considerably more than for its ARL counterpart. For the 1977-87 decade, the median ARL library was slightly ahead.

V. BUDGET -- TOTAL EXPENDITURES

In addition to the issue of the growth and decline of different budget components is the matter of total library expenditures. It is likely that many if not most academic librarians share the oft-cited view that library budgets in higher education have long been anemic. For example, in a recent article in College & Research Libraries, Barbara Moran refers to the "stringent budgets of the 70s and 80s."(15) "Stringency," of course, is in the eye of the beholder, although there is no question that during the 1970s and 1980s, particularly when measured in terms of constant dollars, library budgets did not sustain the growth they had experienced in the 1960s.

Table VA summarizes total library expenditures for the Bowdoin List libraries over a twenty-year period.

Table VA: Total Expenditures, 1967 to 1987, 38 College Libraries

	1966/67	1976/77	1986/87
Q_3	240,860	574,616	1,590,942
Median	199,786	448,911	1,213,180
Q_1	143,202	308,552	853,778

* * * *

The data from both sets of libraries, Bowdoin List and ARL alike, record a significant increase in total expenditures for the years under consideration. For comparative purposes, increases in the Consumer Price Index and the Higher Education Price Index are also provided. The latter index, which is concerned with the prices of those goods and services purchased by colleges and universities, has grown at a significantly faster rate than the Consumer Price Index. Nevertheless, the data in the tables below show that percentage increases in total expenditures for both the

college and the research libraries, even for those libraries in the lowest quartile of each group, have considerably outstripped price increases as measured by the HEPI.(16) (For a fuller description of the Higher Education Price Index, which the U.S. Government began using in 1960, see Appendix F.)

Table VB: Percentage Increases in Total Expenditures 1967 to 1987, 38 College Libraries

	1969-77	1977-87	1967-87
Q_3	184	174	612
Median	142.5	151.5	505.5
Q_1	107.5	120.5	384
CPI	78	90	238
HEPI	89	102	278

Table VC: Total Expenditures, 1960/61, and Percentage Increases in Total Expenditures 1961 to 1987, 28 College Libraries

	Total Expend. 1960/61	% Incr 1961-67	% Incr 1967-77	% Incr 1977-87	% Incr 1961-87
Q_3	133,466	126	189	178	1505
Median	100,797	97	147.5	159.5	1122
Q_1	75,123	83	110	123	934
CPI		11	78	90	274
HEPI		29	89	102	386

To underscore the relative prosperity of the 1960s for academic libraries, Table VC shows that for the median Bowdoin List library total expenditures rose almost nine times faster between 1961 and 1967 than the Consumer Price Index and more than three times faster than the Higher Education Price Index. For the next two decades, the differences are not nearly so great (and not nearly so great between the CPI and the HEPI, either).

* * * *

Table VD: Total Expenditures, 1967 to 1987, 68 ARL Libraries

	1966/67	1976/77	1986/87
Q_3	2,799,073	6,406,850	13,967,683
Median	1,777,012	4,174,622	10,564,074
Q_1	1,314,158	3,309,771	7,772,439

Table VE: Percentage Increases in Total Expenditures 1967 to 1987, 68 ARL Libraries

	1967-77	1977-87	1967-87
Q_3	170	161	549
Median	135	141.5	455
Q_1	98	118	361
CPI	78	90	238
HEPI	89	102	278

For both sets of college libraries, the median library experienced a greater increase in total expenditures than the median ARL library, particularly from 1977 to 1987.

VI. AUTOMATION IN COLLEGE LIBRARIES

In the questionnaire the college library directors were asked about various automated products or processes which their library may have acquired or adopted.

A. OCLC/RLIN

All 35 college libraries have implemented the OCLC bibliographic utility, with the exception of one which is using RLIN instead. The first of these libraries to adopt OCLC did so in 1967, the last in 1982, as the following pattern shows:

Earliest:	1967
Third:	1972
One-fourth:	1974
Half:	1975
Three-fourths:	1978
Third most recent:	1980
Most recent:	1982

B. Online Circulation

In sharp contrast, only 13 of the 35 libraries have acquired an online circulation system. The first of these was added in 1979, and the most recent in 1989, but only two before 1987. The figures below demonstrate the recency of this adoption.

First:	1979
Second:	1986
Third & Fourth:	1987
#s 5 to 8:	1988
#s 9 to 13:	1989

C. Online Acquisitions

More of the college libraries, fifteen of them, have implemented an online acquisitions system, beginning in 1981. Over half of these libraries have acquired such systems during the past two years, as the following distribution shows.

Number of Libraries	Year
2	1989
6	1988
1	1987
2	1984
2	1982
2	1981

D. Online Serials

Only ten of these college libraries own online serials systems, fewer than any other automated component, with the first one implemented in 1982 and the most recent in 1989, with only half of them implemented by 1988.

E. Online Public Catalog

In marked contrast, 21 of the 35 college libraries (60%) have online public catalogs, 17 of them acquired in the last three years and the first acquired as recently as 1983.

Number of Libraries	Year
6	1989
7	1988
5	1987
1	1986
1	1985
1	1983

The directors at an additional 13 of the 35 libraries expect to have an online catalog in operation within two to three years, and the other director expects one in three to five years.

F. CD/ROM Technology

Twenty-six of the 35 responding college libraries presently have CD/ROM technology, the first of which was acquired as recently as 1986. The number of CD/ROM products ranges from one to seven per library.

G. Financing Initial Costs

The college library directors were presented with a list of methods and asked: "How has your library financed, or how do you expect it to finance, the INITIAL cost of the [above] technologies?" A total of 103 methods was selected by the 35 respondents.

In descending order of adherents, the methods indicated were:

Method	Number Choosing
--Special one-time allocations from college or university administration	26
--Special grants from private foundations	25
--Operating Funds [chiefly for OCLC and CD/ROM]	18
--Special gifts or bequests from benefactors	17
--Special government grants	7
--As part of a building fund	4
--Through cooperative purchasing	4
--Other: "as part of college capital campaign"	1
--Other: "fabulous discount...by vendor"	1

It is worth noting that the one option offered that was not chosen by any of the 35 respondents was "special user fees/charges," a method which at least two university libraries I know have used to finance integrated online automation systems.

H. Financing Ongoing Costs

In response to the question, "How is your library financing, or how do you expect it to finance, the ONGOING costs of these technologies?", 34 library directors identified 56 methods.

Method	Number Choosing
--Operating Funds	33
--Special grants from private foundations	6
--Special gifts or bequests from benefactors	5
--Through cooperative purchasing	4
--Special government grants	4
--Special one-time allocations from college or university administration	3
--Other: "Discount"	1

I. Extent of Impact on Existing Library Budget

The college library directors were asked: "To what extent have the costs of automation been borne from within the library's budget, either from funds already in the budget or from funds that would otherwise have gone elsewhere within the library budget?" The responses, and number of directors choosing them, are provided below; thirty-three usable responses were received for this question.

Response	Number
"Not at all" (One of these respondents, whose library had recently installed an integrated system, offered the observation, "Thank God!")	20
"To a limited extent"	10
"To a great extent"	3

The three directors choosing "a great extent" reported that the total impact was: $39,500; $30,000; and $8,767. Only one of these three libraries, that which reported $30,000, has an online public catalog. The library reporting the $39,500 figure has recently invested in a number of CD/ROM products and workstations. Of the ten directors selecting "a limited extent," nine could provide a specific dollar impact, as follows: $50-75,000; $50,000; $35,000; $25,000; $24,000; $20,000; $6,000; $3,000-5,000; $2,000. Of these ten libraries, all but two have installed online public catalogs. Of the twenty library directors responding "not at all," eleven of their libraries have online public catalogs.

J. Attitudes Toward Growth of "Other" Budget Category

Thirty-five college library directors provided 37 responses to the question of how they viewed, in terms of their own library, the significantly more rapid growth of the "other expenditures" category of their budgets. The breakdown of responses was as follows:

	Number
"As irrelevant, since what is important is having enough money for materials, staff, and 'other' regardless of their relative proportions"	22
"Somewhat concerned" (One of these added: "Growth in % of E&G can be misinterpreted as strength in areas like materials and salaries.")	6
"Very concerned"	2
"Very satisfied"	2
"Fairly satisfied"	2
"Neutral"	2
"Not the trend here"	1

When asked to express their opinion about this trend for academic librarianship in general, the responses were not much different. Here the 35 directors provided 38 responses:

"As irrelevant, since what is important is having enough money for materials, staff, and 'other' regardless of their relative proportions"	24
"Somewhat concerned"	5
"Neutral"	3
"Very concerned"	2
"Very satisfied"	1
"Fairly satisfied"	1
"As irrelevant for other reasons (please specify)"	2

--"It is part of academic libraries' future"

--"Doesn't represent money that necessarily would have gone elsewhere within library budget"

In terms of their own libraries, eight of the directors (between 1/4 and 1/5) expressed concern, while four expressed satisfaction. Regarding this trend in the profession, seven were concerned and two satisfied. In both theaters, of course, the great majority of respondents considered this relative growth in the "other" category of expenditures to be irrelevant.

VIII. INTERVIEW RESPONSES

At the twenty-two libraries I visited I learned a great deal about several closely related issues involving the introduction of (what was for them at least) 1980s automation: the online public catalog and the other components identified above. These issues were the perceived benefits of automation; the willingness of the directors to reduce acquisitions or staffing levels in order to automate their libraries; perceived tradeoffs involving automation; expectations about collection growth, "no-growth" collections, and the importance of ownership versus other kinds of access; the directors' perceptions about the changing nature of the college library; and whether their budgets were "about right" in terms of the proportions going to materials, salaries/wages, and "other." Twelve of these libraries have automated catalogs, one more has selected an integrated system, while another four are actively involved in the selection process.

My purpose was to ascertain what benefits, perceptions, expectations, and other matters were most on the minds of the directors in terms of these far-ranging issues. Hence for this part of the study I wanted to ask open-ended questions, rather than seek short, highly specific answers.

* * * *

A. Benefits of Automation

Twenty-two of the directors responded to the question, "What do you consider the benefits of automating?" (This was indicated to be a level of automation beyond OCLC and online database searching.) Listed below are the benefits which were offered by two or more of the respondents, in descending order of occurrence.

Thirteen of the directors included better searching of the catalog by patrons as an important benefit.

Six mentioned efficiencies in various clerical operations. One of them told me, "I'm tired of maintaining a card catalog, thank you," while another observed that "We used to spend tens of thousands of dollars a year for filing cards; we're now using people to better advantage."

Another six offered as a benefit the sharing of library resources through consortia. As one of them put it, "Networking is the reason for automating, not just the library asking for money to fancy up its card catalog."

Five directors referred to automation's either enabling or facilitating shared acquisitions and shared collection development with certain nearby libraries.

Five respondents mentioned the possibility of remote searching of the catalog by faculty from their offices or by others.

Another five referred to obtaining management information from circulation statistics about which parts of the collection were being used.

Four of the directors brought up the library's image vis-a-vis other libraries and its image on the particular campus. One of them said that occasionally she heard from students to the effect that "my home town library has an online catalog; why doesn't this one?" Another observed that the library's position on the campus had been enhanced. And from a third: "The idea that the college has managed to do something of this sort for its students has helped donations from younger donors (a 'cradle to the grave' view). They identify with the library as an up-and-coming place. We've implanted ourselves in their minds this way; normally we don't hear from them until they're out about 25 years."

A separate image issue offered by three directors was that library automation is a factor in admissions competition with other institutions, to gain "a competitive edge in the liberal arts marketplace," as one of them put it.

Two respondents in environments with several branch libraries pointed to the advantage of "getting everything into one database."

Two of the directors were quite interested in the prospect of owning and mounting additional databases.

Two respondents considered library automation an important factor in the library's increasing role in coordinating information on campus.

A benefit explicitly offered by only one director is nonetheless worth repeating. According to him a very important benefit was the opportunity for weeding the collection; "I'm one librarian who's trying not to build another building."

* * * *

B. Acquisitions Dollars versus Automation Dollars

During the interviews, I asked the directors: "Would you reduce acquisitions in order to automate?"

Of the twenty-one usable responses, eleven were "no," seven were "yes," two were "no initially but yes later," and one director was undecided.

The "no" responses were usually much more direct and less ambiguous than the "yes" responses. Among the answers scored as "yes" were the following:

"Our job is to persuade the college that it's not a zero-sum game, that automation is part of an expanding information environment, not a replacement.... It wouldn't bother me to find some limited degree of tradeoff against the acquisitions budget, since the portion going to print is not growing as fast as that going to automation."

"For an online catalog I would, but not for online circulation; keep in mind, we have a term loan period, so there are fewer overdue notices."

"It would be okay to keep the same amount of dollars, and hence reduce the volume of acquisitions."

"Probably. It's reasonable to assume that in a consortial arrangement, we should be able to share books. So if push came to shove, I might do it. I'll do what I have to do in order to achieve the goal; we can always recover the acquisitions budget."

"We might have to in order to implement CD/ROM equipment costs."

"We already have, in order to get CD/ROM. We're really at a place where we need to expand acquisitions."

* * * *

While the directors were quite protective of acquisitions dollars, they were even more protective of staff dollars, as shown in the following section.

* * * *

C. Staff Dollars versus Automation Dollars

In response to the question, "Would you reduce staff (including student workers), or reduce pay increases in order to automate?", sixteen of the directors said "no," three replied in a highly qualified affirmative, and one did not know. The three affirmative responses were as follows:

"Students are working because of financial aid; they have to work somewhere, which is why I've been slow to get automated circulation. (Pause) I might consider reducing staff if necessary to automate."

"I'd never reduce pay increases. I'll look at staff in a planned way, but won't know the answer until the implementation is done....I don't yet know about decreases in technical services staff, but there won't be any in public services."

"It depends. If I were at an institution that proposed, like Solomon, splitting the baby, I'd be uncomfortable. Only if there were an extreme fiscal emergency. I'd feel less uncomfortable letting to technical services people; public services would go last. But the institution would have to convince me that it couldn't afford to provide the staff to help students find information."

* * * *

D. Tradeoffs Involving Automation

All the directors interviewed felt that the advantages that had been brought or would be brought by the introduction of automation outweighed any disadvantages that might follow. At the same time, some of them perceived problems that they were encountering or likely would encounter in their libraries as a result. Some of their observations are given below.

"The biggest problem is the online catalog itself and the use of it. Subject searching isn't easy. The user is given so much more than he or she can handle, and the catalog isn't used well. Also, records need to be cleaned up. The headings themselves are problematic, and there are inconsistencies in how our several institutions have treated headings. But I'd rather have these problems than the problems of the card catalog."

"Tradeoffs with automation other than cost? Well, there's somewhat less attention by reference people to the traditional user, sacrificing the traditional user; we don't give up an online search to help someone at the reference desk because we get instant gratification from the online search process. Also, online searching is more fun. But I don't think things are necessarily being lost."

"We have the worst card catalog known to man; at . . . . . we had a great card catalog. Automation is forcing us to be disciplined, and it will cost the library some money, maybe $50,000 a year in economies: acquisitions, travel budget, maybe staff."

"I see the tradeoffs all on the side of automation. It enables a patron to determine quickly what we have in the media center in French, on a given subject....To the extent that technology is nonintervening, that it doesn't get in the way, it's good. My wife very much prefers a [certain brand of] piano; she says that with other brands, there's something that comes between the pianist and the notes.

"Some of our faculty won't use the new catalog. On the other hand, our French medievalist, doing research on 'troubadours' in some place or other, finds the keyword feature just great. It's a matter of expectations. One of our mathematicians says: 'when can we download the math books onto a floppy disk?' Maybe we could give the faculty the commands and let them pull the records off, but we almost lost the whole database once."

"Apart from the financial issues, there are huge issues of user education and staff education. Our students took to the online catalog right away; it's a common experience, if the OPAC is user friendly. Sometimes the bibliographic instruction people wanted [formerly?] to educate people who didn't need or want to be educated."

"I don't think the college libraries have suffered much, so far, in terms of the costs of introducing automation. The larger campuses have suffered more in that they've had to eat into their own money."

"Automation isn't perfect yet. No system has really effective quality authority control. Some things a card catalog can do that [our system] won't let you do; you could keep authority control over the card catalog, laboriously it's true. The computer is dumb; it won't do more than you tell it. Most systems lack cross references. We do quite a bit of foreign language work and get into trouble with non-European foreign names.

"Automation is a costly thing that provides different services. It's hard to compare what you get with what you were getting."

"By putting our catalog into a local area network, we may lose contact with the faculty, especially if that is combined with having materials

delivered to their offices. Presently, this is how we see the faculty, when they come to the library.

"We're not going to save staff, but the administration still hopes we might.... We're adequately staffed, but I'm worried that with ongoing costs, we might get vacant positions frozen and then lost. I don't think we're losing anything by automating; faculty are saying that the students are finding more."

"There are liabilities too. Undergraduates are inundated with bibliographical resources from all over the world; how do we get them to use our collection first? Also, there's the equity issue. Are we going to subsidize all this online searching with all students? Otherwise, the kid with money has better access. I'm convinced that research is better on the computer, but it's very problematic in the short run. Also problematic is the fact that we're going to have to help the students more. My reference librarians think we should teach them how to use it, and that's it. I think we may just hand them the stuff."

"The big thing is the dollar cost, but there's also the political cost. Luckily here the introduction of automation has been tied to a new building, although I did get $50,000 more annually for maintenance. God help me if I need to ask for a new reader-printer; I've used up my chips and don't have any for awhile. This is true not just of automation, but would be true for any big expense, like a building. It's like the syndrome in [the state capital]: 'we did health last year.' But it is worth it. I had to be pushed into automation, kicking and screaming; I would have said that here the card catalog is okay and relatively easy to use. I would have said we needed acquisitions dollars more. But now the automation industry is more stable.

* * * *

E. Number of Volumes Acquired Annually

In response to the question, "Do you expect the number of volumes you're adding each year to stay the same? Increase? Decrease?," the directors were

quite divided in their responses. Almost certainly considering only the next few years, eleven of the directors replied that the number would stay the same, six that it would increase, and four that it would likely decrease.

Worth repeating is the following comment from one of the directors: "The faculty are anxious to get a larger library acquisitions budget. But we need to be careful; we don't want a good library in a poor institution."

* * * *

F. "No-Growth" Collections

I asked the directors: "Are we approaching a time of 'no-growth' collections, and hence can we stop worrying about increasing the amount of space devoted to library materials? Or at least a time of very slight collection growth?" I received seventeen responses of "no," three of "not now, but in the foreseeable future," and one director thought that the number of "volumes" would continue to grow, but in formats that would not require much additional space. Among the comments were the following:

"Not in my professional lifetime. It's nothing I worry about anymore."

"I never thought that the number of circulations was the key to whether you kept a book or not. If a book is inherently worthwhile it deserves its inch and a half of shelf space."

"I can imagine no-growth for a couple of years, but not in the long run. You can't do it with an academic library repository, a research collection; you can do it with a public library."

"No. Show me one no-growth library. We're not in a place where we can set material trends. We're following the Smiths and the Oberlins, at quite a distance--we can't buck the trend."

"The problem with space is that we have no control over our growth; somebody dies and leaves you thousands of volumes you can't resist. Faculty resist pitching volumes unless they're duplicates."

"The number of volumes and titles will grow, but not in a way to require much more space. Information will be coming in compact forms. In 20 years most back issues of periodicals will be on disk; presently we devote a lot of space to periodical backfiles. Supplementing this development are weeding and the use of compact shelving. We've put our pre-1970 bound periodicals into compact shelving."

* * * *

G. Whether Number of Volumes Added Annually Can Decline

I asked the directors: "Do you think the number of volumes added each year can decline to some extent because of telefacsimile, other delivery systems, special arrangements with other libraries, etc.?" There were twelve respondents who answered "yes," seven "no," one "possibly," and one didn't know. Taken together with the responses to a similar question in Section E, above, these results indicate a combination of two factors: that the directors are more willing to contemplate such a decline than are other influentials on campus, and that they believe that such a course is more practicable once effective resource-sharing mechanisms become more common.

"Our students are getting bibliographic access to things we don't own; we'll buy for them and hence will buy a bit less of what we'll process and house. Instead of anticipating use, we'll buy more in response to demand.... We're not buying titles now we would have three years ago because [some other college] has it. Yet we're buying such a smaller share of the world's literature than when our trustees were in school. Compare our numbers with what Ulrich's has."

"The number of journals could decline first, but we need to add even here, since we never developed what we should have built. We need to strengthen the academic profile of the institution."

"Resource-sharing is a myth; we still need to have the materials here. I don't think that will make a difference."

"No!!!--with three exclamation marks. Like things generate like things.... Show me a school that doesn't build a collection, and that same school won't know how to get involved in resource-sharing. Colleges that use interlibrary loan heavily have as the strongest correlative the service attitude of the staff, and also strong collections. Strong schools are strong in almost every regard, and weak schools are weak in almost every regard."

* * * *

H. Access in Terms of Ownership

The directors were asked: "Are we at a point where ownership is significantly less important than it used to be in terms of providing access?" Of the nineteen usable responses, eleven were "yes," seven were "no," and one was "don't know."

Among the more interesting comments were the following.

"Among faculty, ownership is still the mark of quality; we have to own X, and if it's not here, the library isn't very good....There's not one faculty member who thinks that ownership of a journal somewhere else is a satisfactory substitute."

"It has to be. So much more is being demanded than what's provided within our four walls. It's our user community that's making 'access' more important than acquisitions. They're more driven into research-based materials, more than in the recent past. They see how the rest of the world is going--turn on the TV and there are images from all over the world, so when they walk into the library they wonder why they should be confined to that. Hence we're following them and trying to catch up. It's not our policy change; we're holding a mirror up to our user community and asking them to recognize themselves."

"I think so, but the faculty doesn't. I have letters from faculty members complaining about the consortial approach. I think delivery in 48 hours should suffice. Some faculty are aware that we can't continue in the face of inflation, in the numbers and prices of their journals. Other faculty would say they want it when they need it; they can't tell from the title of an article whether it's worth reading. How do we get people to stop publishing garbage?"

* * * *

I. Present Budget Proportions

I asked the directors, "Do the present proportions in the budget (salaries, materials, "other") seem about right? If not, how will they change?" The responses were very mixed. At one end of the spectrum, none saw only the materials proportion rising, while at the other end, six thought that the salaries/wages proportion would increase. One director observed that he did not foresee any significant shifts, although he would like to: "We're awfully thinly staffed, given what we're trying to do, especially if we're going to get into dialogue with students."

It is worth noting that during discussions related to this question, eight of the directors volunteered observations about staffing. Four of them believed their staffs to be underpaid, and the other four expressed a need for additional staff positions.

Another interesting comment was the following: "We're going to suffer, via demographics, by losing money to financial aid and faculty salaries. We'll have to cut back on new things and on travel. And there's a big commitment to automating the campus."

* * * *

J. Is the Nature of the College Library Changing Fundamentally?

The directors were asked, "Is the nature of the college library changing very much, changing fundamentally, at your institution and around the country?" Eight of the directors believed that it was, six believed it was not, three basically responded both yes and no, one stated, "I don't know how to respond to that," and the remaining responses were less conclusive. Some of the more interesting comments follow.

"Not fundamentally. Librarians are more service-oriented, whereas they used to be collection-oriented."

"Certainly the way we do business is changing. The basis of what libraries do is pretty much the same--provide information. But we don't have to own as much of it and have other ways of getting at it."

"Not really. Automation and various media introduce a different way of working, but that doesn't matter much; people adapt and come to take it for granted. Alumni might find it bewildering and think that we're already in the 21st century."

"Yes, it is changing fundamentally. It's splitting in half, into two types of libraries. Librarians are still responsible for information services: census tapes, books, sound CD's, slides, scanners, satellite dishes, microforms; and then there is the museum side, the special collections where people are concerned about the book as an artifact, displays, preservation, etc. The biggest change I've noticed in librarianship is the tendency of the administration to want to expand the definition of the library. The language laboratory is now a part of it. There is a whole new set of problems: satellite TV, interactive video, CAI, etc. I worry about how to encourage the faculty and educate them. The satellite dish will place a lot of demands on us for taping programs. Students are wanting to start a new TV station, and work with me and the AV librarian. Unless we expand this way and take on responsibility for additional forms of information, we'll die."

"Yes, drastically. The focus is, and increasingly, on access rather than on-site ownership; we'll have a greater responsibility to teach people how to locate what's here, and then help them get the rest. In the past, the faculty knew the bibliography in their field, but now with electronic access the responsibility will fall to librarians to facilitate access."

"You're asking the question of a Neanderthal -- No. The form of information may change, but the use remains the same. We may get information on a CD/ROM disk now, but basically it's the same information."

"The purpose for which we exist remains the same; we're just using different tools and methods to do it. We're going to need a lot more staff for interpretation to our users. Our own collections don't get used as much as they should."

"The challenge is to define ourselves within the college information picture in ways we haven't been before. Formerly, information sources were divided by physical format--less so in the future. So we'll need clarity of thought about the library's role. We'll need to sit down with the computer center director, and the registrar, and decide what information role the library is going to play. Regarding user education, we'll have to help people use networks of information that have more data than can be assimilated; our instruction people are going to have to know more. The people we have on our staffs are eminently capable of doing this.

"The special collections and acquisitions types are concerned about a loss of status."

"The teaching function will be more and more critical--how to use the computerized resources. 'What do I do with this list of citations? How do I get them? What is a government document? What is an article citation?' We see the need for library instruction going on as much as ever."

"Yes, the library is no longer a warehouse of books; it's now a service agency, a node on the network."

"No, because of the essential conservatism at [this institution].

"Yes, and I think it's the nature of the college librarian. The most notable change in my professional life is getting librarians out of clerical detail, and into administrative matters, teaching (like bibliographic instruction), and more reference work. When I came, there wasn't much demand for reference help. There was not even a separate reference desk; the librarians got behind the circulation desk and did more circulation work, as circulation supervisors. Librarians are also taking on a larger role in collection development, which used to be faculty driven."

"Yes. It's the new media coming into the library that's transforming the way we do things."

"Yes, because of automation."

"Radically. We're doing the same thing but doing it radically differently. There wasn't a reference desk here ten years ago."

"The greatest change took place in college libraries in the 1970's. Bibliographic instruction affected everything reference librarians did, including the tools we bought."

* * * *

Some of the disagreement among these directors about the nature of changes in college libraries may well be semantic, but by no means all of it is. This question would make a very interesting theme for a conference.

VIII. CONCLUSIONS

This is a study which is both heuristic and empirical. It may well raise as many questions as it answers. Among the most important conclusions must be the following.

It is difficult to determine what impact automation has had on collection growth. The colleges in the Bowdoin List group have actually increased their materials expenditures as a proportion of total expenditures, a phenomenon which runs counter to the expectations I held when I began this research. The research libraries by 1987 seemed to be spending a larger proportion on materials than they had been a decade earlier, although as noted below these data for the research libraries are soft and no doubt overstate the expenditure for materials. Even so, these data show a drop in the percentage for materials over a twenty-year period.

Although many libraries have reportedly doubled the size of their collections since the mid-1960s, many others, among both the college and the research libraries, have not. It is likely that fewer and fewer libraries will be doubling over a 20-25 year period, much less within Fremont Rider's "sixteen years or thereabouts."(17) Moreover, the issue of defining collection size remains to be addressed more seriously, even though the definitions are tighter than they used to be. For instance, Rider included government documents among the 16,000 volumes which his Wesleyan University Library was adding annually in the 1940s. It is currently the norm not to include separate government documents collections within one's volume count, at least without explicitly noting it.

Although the rate of collection growth is probably slowing, none of the college library directors interviewed believes that she or he is presently facing a "no-growth" library situation. My interviews with library directors revealed that many of them are still very collections conscious. Only four of them think that the number of volumes they're adding each year is likely to decrease in the near future.

The "60-30-10 rule," which matched reality in the "typical" Bowdoin List library in 1960, certainly no longer applies either in the group of colleges studied here, or in the ARL libraries. In the former group, as of 1986/87 the "typical" library showed a division closer to 40-40-20, while in the ARL libraries the corresponding figure is closer to 50-35-15. Kendon Stubbs explicitly, and Jerry Campbell rather more implicitly, have already called our attention to this shift away from "60-30-10" for the ARL libraries.(18)

The trends recorded here run counter to Richard Talbot's contentions in 1984 that "the pattern of library budgetary allocation remains unaffected," that salaries and wages as a percentage of library expenditures have remained at 60% "since at least 1960," and that "the percentage of the library internal budget for acquisitions is fixed."(19) Similarly, these findings raise questions about assertions that libraries generally have funded automation by taking funds from acquisitions.

In the college libraries studied here, the proportion of expenditures going to the "other" category has grown enormously, from 9% in 1960/61, and 8% in 1966/67, to 18% in 1986/87. Contrary to authorities such as Barbara Moran and Charles Churchwell (20), and contrary to my initial supposition, this growth has generally not come at the expense of the materials budget. Expenditures for materials have instead grown as a proportion of total expenditures, from 31% in 1960/61 to 38% by 1976/77 and holding at that a decade later. (Indeed, data just received for the Bowdoin List libraries in 1988/89 show a 39% figure for the median library.) Rather, the relative decline of salaries/wages expenditures has accompanied the increase in the other two categories, although the numbers of both professional and support staff have grown. The explanation for this set of circumstances is likely that costs for materials, and for items in the "other" category, have risen more rapidly than have the costs of people. Most consumers, including college and university administrators, will buy goods and services with an eye to economizing, and the services of library workers have been obtainable at a lower rate of dollar increase than have books, journals, supplies, maintenance, etc. This phenomenon is likely true of most categories of workers in the United States during recent decades, and it would seem to merit further study.

Among the college libraries the growth in materials expenditures as a percentage of total expenditures is likely understated when one takes into account the situation on many college or university campuses regarding audiovisual centers for housing films or videotapes, records, slides, and the like, and for distributing audiovisual equipment around the campus. During the past twenty years or so, a number of audiovisual centers were either created within the administrative/budgetary structure of the library or were moved there. Such entities are generally more staff-intensive and equipment-intensive than they are materials-intensive. To the extent that ARL libraries have come to contain media units, their materials expenditures as a proportion of the total are likewise probably understated. (21)

On the other hand, there is another factor at work which serves to inflate the reported materials expenditures of the ARL libraries. It is widely known that these expenditures include significant amounts for bibliographic utilities and other non-materials costs, serving to exaggerate the amount actually spent on library materials. One librarian, from a medium-sized, non-ARL library, explained his library's practice of charging computerized cataloging costs to its materials budget as follows: "Our 'other' budget categories have not received the support for growth that our materials budgets have, so we find it logical to charge this major expense to materials."(22) In recent years, the ARL Statistics have included "Miscellaneous Materials Expenditures" (in addition to the more traditional "Other Library Materials") as a separate category to capture these expenditures, but it is likely that the new category does not presently include all non-materials costs reported as materials expenditures. As for the colleges, in only three instances did the Bowdoin List directors indicate that significant portions of materials funds were spent for electronic services, such as OCLC charges. Several more indicated that they were including as a part of their reported materials expenditures funds for online computer searching (ranging between $2,000 and $9,000 annually).

The rate of increase in materials expenditures was greater in the college libraries than in the ARL libraries between 1967 and 1977, substantially so, and was also well ahead of those in ARL libraries for the 1967-87 period. For

1977-87, those increases were slightly greater in the ARL libraries. For both sets of libraries between 1967 and 1987, rates of growth in materials expenditures considerably outpaced the increases in U.S. book prices, but they fell considerably short of rising prices for U.S. periodicals (with a commensurately heavier burden on the research libraries, which have been devoting a larger proportion of their materials expenditures to periodicals than have the college libraries).(23) At the same time, to underscore once again the relative prosperity of the 1960s for academic libraries, between 1961 and 1987 the median increase in materials expenditures among 33 college libraries was 1399% (see Table IVE), far outstripping even the 1168% increase in U.S. periodicals prices for the same period; U.S. book prices increased by a relatively modest 513%. Yet the number of academic books and journals published in the late 1980s has been substantially greater than its counterpart of 20 to 25 years ago.

The introduction of online library automation into this group of colleges generally has lagged behind the same phenomenon in the ARL libraries. Nevertheless, during the 1980s automation has caught on rapidly among this group, to the point where 3/5 of the 35 reporting libraries have installed online catalogs, or were to have installed them by the end of this year. Perhaps in part because of the speed with which automation has taken hold, the associated costs of computer hardware and software, some maintenance, and a good deal of retrospective conversion have generally come from outside the library budget, either from the college administration or from outside the college altogether. In fact, perhaps it is the externality of the funding that may explain some of the rapidity with which automation has been and is being adopted in these college libraries. By contrast, one has the impression that because of the much greater automation costs in the research libraries and the more formidable task of retrospective conversion, these institutions are more frequently obliged to absorb these costs from the library budget, often by leaving salary lines open. Another factor may be that many of the ARL libraries are in publicly supported universities and hence have received relatively few grants from foundations in support of automation.

An important question is the extent to which the college libraries' current budgets will remain relatively immune from the future costs of

upgrading and replacement of computer hardware and software. Perhaps the percentage of expenditures going for materials will begin to decline. When one studies the data from the 21 libraries which have installed an online catalog, or expect to install one by the end of 1989, there is no indication that the materials budget has yet suffered as a result. The median percentage of expenditures going for materials among these libraries, both in 1986/87 and in 1987/88, is 37, one point below the median (see Table IVA). Compared with their own percentages ten years before, in 1976/77, eleven libraries had higher percentages in 1986/87, nine had lower, and one showed no change. For 1987/88 (N-20), ten libraries show a higher percentage than the previous year, 8 show a smaller, and for two there is no change.

College library directors often do see tradeoffs involving library automation, but none of them believes that the disadvantages outweigh the advantages.

Although the college library directors disagree about how "fundamental" the changes are, they do perceive that academic libraries are changing the ways in which they operate. An important question has to do with the role of the librarian in the more electronic environment. Many of the directors anticipate a greater degree of librarian involvement with students. To the extent that they are correct, and to the extent that relatively more dollars will go to pay for more librarians, or for higher salaries to attract or retain capable librarians with high degrees of energy and skill, it is quite possible that materials expenditures will decline relatively. This trend would run exactly counter to the recent plea by Jerry Campbell, University Librarian at Duke, that "materials/access" should grow to 50% of expenditures and that salaries/wages should drop to 33%. In Campbell's opinion, "we simply cannot provide enough people to answer all the questions."(24) One problem with his construct, however, as with much of the current discussion about "access," is that library staff, like all other elements in the library operation, are there to provide "access."

Total expenditures for both groups of libraries have grown significantly over the years. Even between 1977 and 1987, such growth far exceeded the increases in either the Consumer Price Index or the Higher Education Price

Index. The median college library fared better than the median research library.

This increase in expenditures considerably in advance of inflation is an interesting and complex phenomenon. Among the relevant factors, probably, is the relentless rise in the prices libraries have had to pay for books and periodicals, including foreign publications whose price increases are not studied here. Another has doubtless been the development of new products and services, within the context of competition among colleges and universities. William O. Beeman, of Brown University's Institute for Research in Information and Scholarship, has observed: "With colleges and universities competing for an ever-more-limited pool of talented students and faculty, most colleges and universities feel the pressure to provide these facilities, even if it causes budgetary strain."(25) As one college library director told me during our interview, while discussing the expansion of academic computing and interactive video on her campus: "Sure, it's keeping up with the Joneses, but that keeping up is what attracts and keeps good faculty."

At least for private colleges and universities, whose tuitions are much higher than those at public institutions, there are some signs of growing consumer resistance to price increases well in advance of increases in the cost of living. A recent U.S. News and World Report article on this subject quotes President Harold Shapiro of Princeton University as saying: "We all have to be much more selective about what we do and what we purport to do if we have any hope of keeping the costs of education within . . . bounds."(26) And John Maguire, President of the Claremont Colleges, addressing the Oberlin Group of liberal arts college library directors on his campus less than a week after the article's publication, pointed to the same problem, telling us that presidents are counting on librarians to give their institutions quality at a price those institutions can afford.

ACKNOWLEDGEMENTS

Trinity University provided me an academic leave, between December 1988 and May 1989, additional resources in the form of computer, secretarial, photocopying, postage, and telephone support, and some travel funds. Through its new fellowship program, the Council on Library Resources granted me a stipend which funded a substantial portion of the expenses incurred in my travels to interview the college library directors. The assistance from both institutions was indispensable for this project, and I am grateful for it.

Also indispensable was the support I received from my administrative assistant, Dorothy R. Williams. Mrs. Williams oversaw the inputting of the data, arrayed those data table-by-table (the results of her efforts are most apparent in Appendix D), and helped me sort through a number of questions at different stages of the project; she contributed very substantively to the final product. She was ably assisted by Rosemary Nelson and Ruby Wehmeyer of the Trinity Library staff.

A third essential element consists of the information upon which this report is based and the people who supplied it. Arthur Monke, library director at Bowdoin College, made available a complete set of the Bowdoin List data, while Duane Webster and Nicola Daval of the Association of Research Libraries helped me secure the ARL statistics. Robert Molyneux of Louisiana State University and Kendon Stubbs of the University of Virginia provided me with the "Princeton Statistics" for 1960/61; they have also been supportive of this project and helpful in several ways. Special thanks also must go to the thirty-five college library directors who took the time to respond to a fairly lengthy questionnaire. Over half of them devoted additional hours to interviews with me on their campuses, thereby placing me even more deeply in their debt.

This document has benefited greatly from the comments, criticisms, and suggestions I received from a number of people: Willis Bridegam, Caroline Coughlin, Michael Freeman, Victoria Hanawalt, Robert Hayes, Lauren Kelly, Deanna Marcum, Robert Molyneux, Ann Okerson, Henry Riecken, Dennis Ribbens,

Kendon Stubbs, Patricia Swanson, and Keith Swigger. I appreciate their time and thoughtfulness, and hope that they will forgive my occasional decision not to take their advice; I never ignored it. Any errors and other shortcomings which remain are, of course, solely my responsibility.

NOTES

1. Lawrence Thompson, "Suggestions for Statistical Records, I," College and Research Libraries, 6 (June, 1945), p. 210; Warren J. Haas, "Foreword," in Martin M. Cummings, The Economics of Research Libraries (Washington, D.C., 1986), p. 8.

2. Daniel Gore, "Farewell to Alexandria: The Theory of the No-Growth, High-Performance Library," in Gore, ed., Farewell to Alexandria: Solutions to Space, Growth, and Performance Problems of Libraries (Westport, Conn., 1976), pp. 164-180.

3. College and Research Libraries, 4 (March, 1943), p. 153, and 21 (July, 1960), p. 316.

4. Jim Skipper, Executive Director of ARL, to Directors of ARL Libraries, July 26, 1963, copy in author's possession.

5. Richard Harwell, library director at Bowdoin College, to 36 college library directors, October 23, 1967, copy in author's possession.

6. I am much indebted to Arthur Monke, library director at Bowdoin College, for providing me with a complete set of the data.

7. The American Library Directory, 1962 (New York, 1962).

8. I am indebted to Robert Molyneux of the Graduate Library School, Louisiana State University, and to Kendon Stubbs, Associate Library Director at the University of Virginia, for sending me a copy of this list.

9. George Piternick, "ARL Statistics--Handle With Care," College and Research Libraries, 38 (September, 1977), pp. 419-423. See also Kendon Stubbs, "Apples, Oranges, and ARL Statistics," Journal of Academic Librarianship, 14 (September, 1988), pp. 231-235; Robert M. Hayes, Ann M. Pollack, and Shirley Nordhaus, "An Application of the Cobb-Douglas Model to

the Association of Research Libraries," Library and Information Science Research, 5 (1983), pp. 297-306; Eli M. Oboler, "The Accuracy of Federal Academic Library Statistics," College and Research Libraries, 25 (November, 1964), pp. 494-496.

10. ARL Statistics for 1976/77.

11. The figures for student work were always supplied with the ARL Statistics. The change in 1974/75 amounted to including an FTE equivalent of student workers as part of a "Total Library Staff" figure.

12. Fremont Rider, The Scholar and the Future of the Research Library (New York, 1944), pp. 3-5, 9 (emphasis in the original).

13. Richard J. Talbot, "College and University Libraries: Lean Years and Fat Years--Lessons to Be Learned," The Bowker Annual of Library and Book Trade Information (New York, 1984), pp. 77-81; Kendon Stubbs, "Introduction," ARL Statistics, 1987-88 (Washington, D.C., 1989), p. 8; Barbara Moran, "The Unintended Revolution in Academic Libraries: 1939 to 1989 and Beyond," College and Research Libraries, 50 (January, 1989), p. 30; Jerry D. Campbell, "Academic Library Budgets: Changing 'The Sixty-Forty Split,'" Library Administration and Management, 3 (Spring, 1989), p. 78.

14. The price data for books and periodicals are from The Bowker Annual of Library and Book Trade Information for the following years: 1963, pp. 95-96; 1968, pp. 103, 105; 1978, pp. 318, 320; 1979, p. 337; 1988, pp. 426-27.

This information about price increases for books and periodicals is offered as a comparison to the materials expenditures increase. Since the data are for U.S. publications only, they do not capture price trends in these years for foreign publications, of particular significance for the research libraries.

To provide a price for the cost of books in an academic year, an average price was derived for the two relevant calendar years. Periodicals, on the other hand, are paid for in advance, for an ensuing calendar year; hence I used price information for the appropriate calendar year.

15. Moran, "Unintended Revolution," p. 29.

16. Data from which calculations were made for both indexes may be found in U.S. National Center for Education Statistics, Digest of Education Statistics, 1988 (Washington, D.C., 1988), p. 35. The HEPI data for 1986-87 were obtained by telephone from the National Center. See also D. Kent Halstead, Inflation Measures for Schools and Colleges (Washington, D.C., 1983), pp. 50-51.

17. Rider, Scholar and the Future of the Research Library, p. 9. Comparing the 1980 ARL statistics with earlier data, Warren F. Seibert observed in 1985 that "in some respects, a deceleration of earlier growth rates is evident in the data and this might signal a new trend and an erosion of the trends found by Rider." Yet he then drew back from his conclusion, saying: "we hesitate to concede that point; the few analyses of this brief study give insufficient reason to abandon those weightier and near-venerable findings." Seibert, "How Libraries Grow: A Brief Look Backward (and Forward)," Journal of Academic Librarianship, 11 (March, 1985), p. 22.

18. Stubbs, "Introduction," p. 8; Campbell, "Academic Library Budgets," p. 78.

19. Talbot, "College and University Libraries," pp. 77, 80.

20. Moran, "Unintended Revolution," p. 30; Charles Churchwell, remarks at a conference of the Florida Chapter of the Association of College and Research Libraries, November 4, 1988, summarized in "The Academic Library Is More Than An Information Center: Report on the Conference," by Betty D. Johnson, in CLS Newsletter, (Spring, 1989), p. 6.

21. Michael S. Freeman, library director at Haverford College, provided me with this insight.

22. Sherman Hayes, "Budgeting For and Controlling the Cost of Other in Library Expenditures: The Distant Relative in the Budgetary Process," Journal of Library Administration, 3 (Fall/Winter, 1982), p. 129.

23. Data about serials expenditures as a percentage of materials expenditures for a group of 62 liberal arts college libraries, in the author's possession.

24. Campbell, "Academic Library Budgets," p. 79.

25. William O. Beeman, "Assessing Intensive Computing on the College Campus: A Research Summary," in Daphne N. Layton, ed., Integrated Planning for Campus Information Systems (Dublin, Ohio, 1989), p. 12.

26. "A New Era on Campus," U.S. News and World Report (October 16, 1989), pp. 54-57.

Appendix A

THE BOWDOIN LIST INSTITUTIONS

Amherst*
Antioch
Bates
Beloit*
Bowdoin*
Bryn Mawr
Bucknell*
Carleton*
Colby*
Colgate*
Connecticut*
Davidson*
Dickinson
Earlham*
Franklin & Marshall*
Grinnell*
Hamilton*
Haverford*
Hollins
Knox
Lafayette*
Lawrence*
Macalester*
Middlebury*
Mills*
Mount Holyoke*
Oberlin*
Occidental*
Randolph-Macon*
Reed*
Smith*
Swarthmore*
Trinity, Connecticut*
Union*
University of the South*
Vassar*
Wabash*
Washington & Lee
Wellesley*
Wesleyan*
Wheaton*
Williams*

* indicates a response to the survey

DATA SHEET, 1960-87

Appendix B

Institution:_____

Please fill in where I have dashes in place of #s. Also, please correct any number that is wrong, or just circle any that looks strange to you and is not easily correctable. The circled numbers correspond to the numbers on the next page, "Notes for Data Sheet, 1960-87."

	(2) 1960-61	(2) 1962-63	(2) 1964-65	(3) 1966-67	(3) 1971-72	(3) 1976-77	(3) 1981-82	(3) 1986-87	(4) Change since 1960-61
Collection Size (1) (# of volumes)									
Total Library Expenditures									
Salaries and Wages Expenditures									
Sal./Wages Expend. (4) as % of Total Expend.									
Library Materials Expenditures: (5)									
—Books									
—Periodicals									
—Binding									
—Other									
—Total									
Lib. Mats. Expend. (4) as % of Total Expend.									
Other Expenditures (6)									
Other Expenditures (4) as % of Total Expend.									
# of Profl. Libns. (7) (full-time equiv.)									
# of Total Staff (7) (full-time equiv.)									

I. NOTES FOR "DATA SHEET, 1960-1987"

(The numbers below correspond to the numbers circled on the data sheet, previous page.)

1. Unless noted otherwise by respondent, collection size expressed in number of volumes should not include either government documents or microform volume equivalents.

2. Data taken from the AMERICAN LIBRARY DIRECTORY

3. Data taken from the "Bowdoin List" for that year

4. I'll compute the results; just wanted to show you an important variable I'm interested in.

5. These breakdowns within the materials budget are sometimes unavailable from the AMERICAN LIBRARY DIRECTORY for the early 1960s, and are unavailable from the Bowdoin List until 1979-80. Please supply if you can.

6. Derived by subtracting Salaries/Wages and Materials amounts from Total Expenditures

7. This information is unavailable from the AMERICAN LIBRARY DIRECTORY. Please supply the information for the early years if you can.

II. QUESTIONS ABOUT THE DATA FOR YOUR INSTITUTION

(The purposes of this section are two. I'm trying to make the libraries' budgets as comparable as I can, in terms of what elements are included. Even more important to me, however, is to know whether the "other" portion has grown markedly at many institutions because it now includes certain things which formerly were budgeted centrally by the institution and hence not within the library budget at all. Fringe benefits is a good example of such a category.)

1. Does the Total Expenditures figure include fringe benefits for any of these reporting periods? ____Yes ____No ____Don't Know

(If yes, in what $ amount and for which years? Or, at least, since when?)

2. Does the Salaries/Wages figure include fringe benefits for any of these reporting periods? ____Yes ____No ____Don't Know

(If yes, for which years?)

3. Does the Total Expenditures figure include dollars for college work study students, or for other student workers, for any of these reporting periods? ____Yes ____No ____Don't Know

(If yes, in what $ amount and for which years? Or, at least, since when?)

4. Does the Salaries/Wages figure include dollars for college work study students, or for other student workers, for any of these reporting periods? ____Yes ____No ____Don't Know

(If yes, for which years?)

5. Does the Total Expenditures figure include capital equipment $ for any of the reporting periods? ____Yes ____No ____Don't Know

(If yes, in what $ amount and for which years?)

6. Does the Library Materials Expenditure Total figure include SERVICES such as on-line computer searching, OCLC charges, etc.?
____Yes ____No (If yes, in which years, for what services, and in what dollar amounts?)

7. Does the Library Materials Expenditures Total figure include CD/ROM or other electronic PRODUCTS? ____Yes ____No (If yes, in which years, for what products, and in what dollar amounts?)

8. On a separate sheet, or on the verso of this page, please provide a breakdown of the "Other Expenditures" category. I am enclosing such a breakdown for our Library as an example. It would be extraordinarily helpful if you could provide the data for the same years as on the "Data Sheet" (1960-61, 1962-63, 1964-65, 1966-67, 1971-72, 1976-77, 1981-82, 1986-87, and 1987-88), but most libraries probably don't have access to the records necessary to do this. I'll be grateful for whatever you are able to provide, even if it's only for the most recent year or two. My purpose is to ascertain, to the extent possible, the composition of the "other" category, and how it has changed over time. Use dollar amounts instead of percentages if you prefer.

Trinity U. "Other Expenditures " Breakdown for 1987-88:
(Other than Library Materials and Salaries/Wages)
(Not including A/V Center, student workers, or fringe benefits)

	%
Amigos/OCLC	21.26%
General Supplies	17.87%
Maintenance Contracts	10.59%
COM Catalog Production	10.25%
Travel	7.75%
Telephone Equipment	6.72%
Printing/Duplicating	5.48%
Misc. Interlibrary Loan	3.54%
Catalog Cards & Labels	3.12%
Postage	3.07%
Long Distance Telephone	2.04%
Minor equipment	1.91%
Equipment Repair	1.60%
Misc. Memberships	1.38%
Misc. Expense Allowance	0.95%
Equipment Rental	0.86%
Incoming Freight	0.66%
Food Service	0.38%
Advertising	0.29%
BRS/DIALOG (unreimbursed)	0.29%

Automation Costs (Subset)

--Amigos/OCLC	21.26%
--BRS/DIALOG	0.29%
--COM Catalog Production	10.25%
--CLSI Circ. System Maint. Contract	7.23%
	39.03%

III. QUESTIONS ABOUT AUTOMATION IN YOUR LIBRARY

A. Which of the following does your library either have presently, or expect to obtain in the next 2-3 years or 3-5 years?

	Have (Year Obtained)	Expect in 2-3 Years	Expect in 3-5 Years
1. OCLC			
2. Online Circulation System			
3. Online Acquisitions System			
4. Online Serials System			
5. Online Public Catalog			
6. CD/ROM Products (please specify)			
7. Complete* retrospective conversion of catalog into machine-readable form.			
8. Other (please specify)			

* As "complete" as you contemplate accomplishing

B. If you have, or expect to obtain within the next five years, one or more of the following, please indicate either the actual initial and annual (ongoing) costs, or the expected initial and annual costs.

	Actual Initial Cost	Actual Annual Cost	Expected Initial Cost (in today's $)	Expected Annual Cost (in today's $)
1. Online Circulation System				
2. Online Acquisitions System				
3. Online Serials System				
4. Online Public Catalog				
5. CD/ROM Products (please specify)				
6. Other (please specify)				

C. If you have one or more of the above, do you expect the annual cost(s) to rise markedly in the next year or two?

____Yes ____No If yes, which item(s) and to what amount(s)?

D. Are all of your public catalog records presently in machine-readable form?

____Yes ____No

If "No":

a) Approximately how many are not? _____

b) About what percentage of these do you plan to convert to machine-readable form? _____%

c) Approximately how many years do you think such conversion will take?

E. How has your library financed, or how do you expect it to finance, the INITIAL cost of the technologies listed above?

Method(s) (circle)	Item(s) (please identify)
1. Special governmental grants	
2. Special grants from private foundations	
3. Special user fees/charges	
4. Special one-time allocations from college or university administration	
5. As part of a building fund	
6. Special gifts or bequests from benefactors	
7. Cooperative purchasing	
8. Operating funds	
9. Other (please specify)	

F. How is your library financing, or how do you expect it to finance, the ONGOING costs of these technologies?

Method(s) (circle)	Item(s) (please identify)
1. Special governmental grants	
2. Special grants from private foundations	
3. Special user fees/charges	
4. Special one-time allocations from college or university administration	
5. As part of a building fund	
6. Special gifts or bequests from benefactors	
7. Cooperative purchasing	
8. Operating funds	
9. Other (please specify)	

G. To what extent have the costs of automation been borne from within the library's budget, either from funds already in the budget or from funds that would otherwise have gone elsewhere within the library budget?

1) ____Not at all 2) ____To a limited extent 3) ____To a great extent

If you responded affirmatively to either #2 or #3, what would you estimate the dollar amount to be, $_____total, and $_____ for 1987-88?

If you responded affirmatively to either #2 or #3, what would you estimate the dollar amount FROM SALARIES/WAGES to be, $_____total, and $_____for 1987-88?

If you responded affirmatively to either #2 or #3, what would you estimate the dollar amount FROM MATERIALS to be, $_____total, and $_____for 1987-88?

H. In most college and university libraries, probably including your own, the "other expenditures" category has grown much faster as a portion of the library's total budget in the last 10-15 years than the salaries/wages and materials portions.

1. In terms of your own library, how do you view this development?

a) ____Very satisfied b) ____Fairly satisfied c) ___Neutral

d) ____Somewhat concerned e) ____Very concerned f) ____Not the trend here

g) ____As irrelevant, since what is important is having enough money for materials, staff, and "other" regardless of their relative proportions.

h) ____As irrelevant for other reasons (please specify).

2) In terms of academic librarianship in general, how do you view this development?

a) ____Very satisfied b) ____Fairly satisfied c) ____Neutral

d) ____Somewhat concerned e) ____Very concerned

f) ____As irrelevant, since what is important is having enough money for materials, staff, and "other" regardless of their relative proportions.

g) ____As irrelevant for other reasons (please specify).

I. Your college or university administration has just told you that the library budget was going to be increased by 20% beginning next fiscal year, and that this increase would henceforth be considered as an integral part of the library's base budget for future years. You are also told that it is entirely for you to decide how the money should be spent, with the only admonition being that it should not be spent in such a way as to increase, directly or indirectly, the director's salary, travel, or other perquisites. How would you allocate the money?

____% to Materials (books____%; subscriptions____%; other materials____% [please specify])

____% to Salaries/Wages

____% to binding

____% to other preservation

____% to automation (please specify)

____% to other things (please specify)

That's all. Thanks again for your time. Please return to Richard Werking, Trinity University Library, using the enclosed envelope if it's handy.

Appendix C

COLLEGE LIBRARIES VISITED AND LIBRARY DIRECTORS INTERVIEWED

Amherst--Willis Bridegam

Beloit--Dennis Dickinson

Bryn Mawr--James Tanis

Carleton--John Metz

Connecticut College--Brian Rogers

Depauw--Diane Murray

Earlham--Evan Farber

Haverford--Michael Freeman

Lawrence--Dennis Ribbens

Macalester--Joel Clemmer

Mills--Steven Pandolfo

Mount Holyoke--Anne Edmonds

Occidental--Jacquelyn Morris

Reed--Victoria Hanawalt

Smith--Billie Bozone

St. Olaf--Forrest Brown

Swarthmore--Michael Durkan

Trinity, Connecticut--Ralph Emerick

Wabash--Larry Frye

Wellesley--Eleanor Gustafson

Wesleyan--Robert Adams

Wheaton--Sherrie Bergman

Table IA

NUMBER OF VOLUMES, 1967 to 1987, 38 COLLEGE LIBRARIES

#	# Vols Ordered 7/67	# Vols Ordered 7/77	# Vols Ordered 7/87
1	636,437	849,897	996,222
2	574,649	776,132	951,194
3	510,698	759,191	921,160
4	455,100	568,091	759,240
5	413,284	542,552	710,852
6	404,322	524,202	668,987
7	381,459	520,088	640,777
8	379,638	495,746	633,501
9	335,645	459,449	620,898
10	329,133	426,181	542,219
11	305,551	409,658	518,435
12	278,258	343,800	464,322
13	272,864	340,061	462,218
14	256,223	339,175	435,144
15	255,497	337,295	427,414
16	241,575	334,023	423,943
17	240,039	319,909	417,782
18	227,345	317,858	414,666
19	227,045	311,081	403,857
20	217,057	307,517	386,184
21	207,763	270,851	377,459
22	197,795	270,000	373,354
23	194,000	258,099	351,353
24	183,729	252,059	343,172
25	179,665	246,729	331,391
26	176,367	240,181	317,426
27	175,557	237,719	317,340
28	173,892	232,171	317,173
29	172,452	229,862	301,056
30	164,678	229,275	289,813
31	151,126	225,600	284,240
32	150,901	225,121	255,911
33	141,434	214,013	247,298
34	133,886	211,616	230,335
35	128,995	200,798	221,441
36	128,324	174,173	193,550
37	109,360	169,096	179,285
38	92,892	135,233	151,989

Bowdoin List institutions included in Table IA:

Amherst	Washington & Lee
Antioch	Wellesley
Bates	Wesleyan
Beloit	Williams
Bowdoin	
Carleton	
Colby	
Colgate	
Connecticut	
Davidson	
Dickinson	
Earlham	
Franklin & Marshall	
Grinnell	
Hamilton	
Haverford	
Hollins	
Knox	
Lafayette	
Lawrence	
Macalester	
Middlebury	
Mt. Holyoke	
Oberlin	
Occidental	
Randolph-Macon	
Reed	
Smith	
Swarthmore	
Trinity	
Union	
U. South	
Vassar	
Wabash	

Table IB

PERCENTAGE INCREASES IN NUMBER OF VOLUMES 1967 TO 1987,
38 COLLEGE LIBRARIES

#	% change ordered '67-'77	% change ordered '77-'87	% change ordered '67-'87
1	88%	89%	166%
2	79%	71%	164%
3	73%	53%	148%
4	71%	49%	124%
5	68%	46%	124%
6	66%	43%	116%
7	65%	38%	108%
8	56%	37%	108%
9	54%	37%	100%
10	50%	36%	99%
11	49%	34%	95%
12	46%	34%	93%
13	41%	34%	84%
14	40%	34%	80%
15	40%	33%	79%
16	40%	33%	78%
17	37%	32%	77%
18	34%	31%	77%
19	34%	31%	75%
20	33%	29%	74%
21	32%	28%	73%
22	32%	26%	70%
23	32%	23%	69%
24	32%	23%	67%
25	31%	22%	64%
26	29%	21%	62%
27	27%	21%	60%
28	27%	19%	55%
29	25%	17%	54%
30	24%	14%	54%
31	24%	13%	53%
32	22%	12%	49%
33	22%	12%	39%
34	20%	11%	27%
35	19%	0%	27%
36	14%	-3%	26%
37	11%	-7%	24%
38	-14%	-21%	-9%

Bowdoin List institutions included in Table IB:

Amherst	Washington &
Antioch	Wellesley
Bates	Wesleyan
Beloit	Williams
Bowdoin	
Carleton	
Colby	
Colgate	
Connecticut	
Davidson	
Dickinson	
Earlham	
Franklin & Marshall	
Grinnell	
Hamilton	
Haverford	
Hollins	
Knox	
Lafayette	
Lawrence	
Macalester	
Middlebury	
Mt. Holyoke	
Oberlin	
Occidental	
Randolph-Macon	
Reed	
Smith	
Swarthmore	
Trinity, Conn.	
Union	
U. of the South	
Vassar	
Wabash	

Table IC

NUMBER OF VOLUMES HELD, 1961, AND PERCENTAGE INCREASES IN NUMBER OF VOLUMES, 1961 TO 1987, 32 COLLEGE LIBRARIES

#	Ordered # Vols 7/61	% change ordered '61-'67	% change ordered '67-'77	% change ordered '77-'87	% change ordered '67-'87	% change ordered '61-'87
1	552,500	114%	79%	53%	148%	294%
2	474,747	96%	73%	49%	124%	290%
3	448,850	80%	71%	43%	124%	273%
4	350,665	76%	68%	38%	116%	245%
5	339,308	73%	66%	37%	108%	222%
6	335,000	64%	65%	37%	100%	209%
7	272,979	61%	54%	34%	99%	203%
8	268,128	58%	50%	34%	95%	194%
9	258,566	41%	46%	34%	93%	165%
10	252,739	38%	41%	34%	84%	160%
11	251,876	37%	40%	33%	80%	152%
12	235,000	35%	40%	33%	78%	149%
13	235,000	30%	37%	32%	77%	145%
14	220,045	27%	34%	31%	77%	144%
15	208,399	26%	34%	31%	75%	136%
16	190,000	23%	33%	29%	74%	126%
17	179,000	22%	32%	28%	73%	122%
18	178,730	22%	32%	26%	69%	110%
19	160,960	21%	32%	23%	67%	100%
20	159,774	21%	31%	23%	64%	99%
21	153,899	19%	29%	22%	62%	98%
22	143,558	16%	27%	21%	60%	94%
23	141,981	15%	27%	21%	55%	89%
24	134,160	15%	25%	19%	54%	82%
25	127,618	14%	24%	17%	54%	77%
26	105,944	14%	24%	13%	53%	72%
27	102,843	12%	22%	12%	49%	68%
28	100,000	12%	22%	12%	39%	65%
29	92,127	11%	20%	0%	27%	56%
30	90,000	9%	19%	-3%	27%	54%
31	87,331	8%	14%	-7%	24%	35%
32	85,000	3%	11%	-21%	-9%	0%

Bowdoin List institutions included in Table IC:

Amherst	Middlebury
Beloit	Mt. Holyoke
Bowdoin	Oberlin
Carleton	Occidental
Colby	Randolph-Macon
Colgate	Reed
Connecticut	Smith
Davidson	Swarthmore
Earlham	Trinity
Franklin & Marshall	Union
Grinnell	U. South
Hamilton	Vassar
Haverford	Wabash
Lafayette	Wellesley
Lawrence	Wesleyan
Macalester	Williams

Table ID

NUMBER OF VOLUMES, 1967 TO 1987, 69 ARL LIBRARIES

(Data for St. Louis University are not included.)

#	'66/67	'76/77	'86/87	#	'66/67	'76/77	'86/87
1	7,791,538	9,547,576	11,284,170	36	1,191,543	1,807,154	2,436,454
2	5,183,790	6,884,604	8,391,707	37	1,161,526	1,792,782	2,431,942
3	4,312,583	5,828,980	7,190,443	38	1,151,928	1,719,178	2,407,696
4	3,782,479	4,917,381	7,031,934	39	1,121,915	1,718,273	2,390,943
5	3,643,869	4,917,330	6,019,919	40	1,100,634	1,717,369	2,365,235
6	3,328,018	4,730,492	5,753,629	41	1,084,690	1,704,848	2,270,617
7	3,067,073	4,399,020	5,625,925	42	1,084,200	1,678,402	2,217,231
8	2,940,208	4,363,593	5,625,521	43	1,071,499	1,673,463	2,192,100
9	2,614,331	4,053,715	5,598,363	44	1,066,228	1,669,840	2,179,666
10	2,606,431	3,985,162	5,563,396	45	1,063,094	1,665,274	2,146,136
11	2,559,244	3,979,581	4,865,137	46	1,047,472	1,659,549	2,120,974
12	2,469,810	3,908,053	4,818,377	47	1,030,236	1,653,000	2,074,443
13	2,202,206	3,886,130	4,713,250	48	1,009,426	1,640,420	2,065,334
14	2,025,046	3,363,576	4,658,911	49	1,000,877	1,557,648	2,062,818
15	1,988,097	3,257,759	4,382,696	50	988,194	1,557,201	2,043,393
16	1,945,271	3,238,152	4,169,610	51	985,785	1,497,639	1,952,593
17	1,889,874	3,236,944	3,961,415	52	982,860	1,446,011	1,950,400
18	1,863,233	2,910,461	3,881,945	53	980,038	1,370,999	1,889,500
19	1,847,426	2,869,558	3,591,197	54	975,025	1,359,509	1,856,510
20	1,832,546	2,784,260	3,442,389	55	914,880	1,343,738	1,794,564
21	1,815,183	2,594,777	3,414,643	56	878,760	1,332,784	1,765,633
22	1,759,166	2,501,672	3,270,365	57	860,527	1,318,583	1,746,862
23	1,617,696	2,325,795	3,239,055	58	850,578	1,311,432	1,723,660
24	1,553,014	2,316,998	2,920,175	59	833,572	1,274,151	1,711,774
25	1,455,839	2,274,173	2,902,823	60	829,100	1,265,156	1,708,592
26	1,410,760	2,174,868	2,888,342	61	826,874	1,231,540	1,693,117
27	1,367,670	2,143,226	2,839,825	62	821,639	1,229,547	1,682,060
28	1,354,178	2,101,525	2,741,834	63	776,628	1,223,969	1,667,720
29	1,292,107	2,055,581	2,670,600	64	772,830	1,211,874	1,646,550
30	1,283,262	1,995,278	2,639,439	65	720,708	1,180,951	1,622,336
31	1,271,581	1,962,539	2,620,805	66	680,370	1,131,594	1,613,442
32	1,266,745	1,957,276	2,605,601	67	668,995	1,107,989	1,587,838
33	1,235,969	1,955,196	2,604,601	68	638,435	1,092,099	1,581,754
34	1,222,730	1,882,394	2,549,057	69	611,155	1,082,222	1,492,864
35	1,213,855	1,852,841	2,484,152				

Table IE

PERCENTAGE INCREASES IN NUMBER OF VOLUMES 1967 to 1987,
69 ARL LIBRARIES

(Data for St. Louis University are not included.)

#	% change ordered '67-'77	% change ordered '77-'87	% change ordered '67-'87	#	% change ordered '67-'77	% change ordered '77-'87	% change ordered '67-'87
1	169%	66%	237%	36	49%	32%	101%
2	133%	61%	207%	37	49%	32%	95%
3	129%	56%	205%	38	48%	31%	93%
4	122%	54%	200%	39	48%	30%	90%
5	108%	52%	196%	40	47%	30%	90%
6	108%	51%	180%	41	46%	29%	87%
7	103%	50%	180%	42	46%	28%	83%
8	93%	50%	179%	43	45%	28%	80%
9	90%	49%	177%	44	40%	28%	80%
10	90%	48%	170%	45	38%	27%	77%
11	86%	46%	157%	46	37%	27%	76%
12	81%	46%	156%	47	37%	26%	74%
13	77%	45%	151%	48	36%	26%	73%
14	76%	44%	141%	49	35%	26%	71%
15	74%	44%	140%	50	35%	25%	71%
16	70%	43%	135%	51	34%	25%	70%
17	69%	43%	128%	52	33%	25%	69%
18	68%	42%	125%	53	32%	25%	69%
19	67%	41%	124%	54	32%	25%	67%
20	65%	40%	122%	55	31%	24%	67%
21	64%	39%	121%	56	31%	24%	65%
22	62%	38%	118%	57	31%	23%	65%
23	60%	38%	115%	58	30%	22%	65%
24	60%	38%	113%	59	30%	22%	63%
25	58%	37%	111%	60	30%	21%	63%
26	56%	37%	110%	61	29%	21%	62%
27	56%	37%	110%	62	25%	19%	62%
28	55%	36%	110%	63	25%	19%	61%
29	55%	35%	110%	64	23%	18%	61%
30	55%	35%	109%	65	23%	17%	58%
31	54%	34%	107%	66	22%	14%	57%
32	53%	33%	105%	67	19%	5%	51%
33	52%	33%	104%	68	18%	-4%	49%
34	52%	33%	102%	69	1%	-12%	45%
35	52%	32%	102%				

Table IF

NUMBER OF VOLUMES HELD, 1960-61, AND PERCENTAGE INCREASE IN NUMBER OF VOLUMES HELD 1961 TO 1987, 42 RESEARCH LIBRARIES

#	Collection size '60/61	% change ordered '61-'67	% change ordered '67-'77	% change ordered '77-'87	% change ordered '67-'87	% change ordered '61-'87	
1	6,848,635	82%	133%	54%	200%	322%	Research libraries
2	4,490,420	62%	108%	50%	196%	304%	included in Table IF:
3	3,383,384	59%	108%	46%	180%	259%	
4	2,939,751	57%	93%	45%	157%	253%	Brown
5	2,912,936	56%	81%	44%	140%	246%	California/Berkeley
6	2,596,526	55%	77%	44%	135%	229%	California/Los Angeles
7	2,198,654	52%	69%	43%	128%	226%	Chicago
8	2,142,223	47%	65%	43%	122%	224%	Cincinnati
9	2,020,594	46%	64%	42%	115%	217%	Colorado
10	1,703,059	42%	58%	41%	111%	197%	Columbia
11	1,689,302	41%	56%	38%	110%	195%	Cornell
12	1,615,740	39%	56%	38%	110%	188%	Duke
13	1,568,565	37%	55%	37%	110%	184%	Florida University
14	1,493,022	37%	55%	36%	110%	183%	Harvard
15	1,481,175	37%	55%	35%	109%	183%	Illinois
16	1,455,758	36%	54%	34%	107%	177%	Indiana
17	1,447,387	35%	53%	33%	105%	174%	Iowa State
18	1,424,861	35%	52%	30%	95%	174%	Iowa University
19	1,414,286	35%	52%	29%	93%	171%	Johns Hopkins
20	1,185,246	34%	49%	28%	90%	169%	Joint/Vanderbilt
21	1,121,634	33%	48%	28%	90%	163%	Kansas
22	1,104,610	32%	48%	27%	87%	160%	Kentucky
23	1,104,485	30%	46%	27%	83%	150%	Louisiana State
24	1,077,343	29%	46%	26%	80%	141%	M.I.T.
25	1,059,343	29%	40%	26%	77%	135%	Michigan State
26	1,056,508	28%	38%	25%	76%	135%	Michigan University
27	1,043,330	28%	37%	25%	73%	127%	Minnesota
28	966,496	27%	35%	25%	71%	127%	Missouri
29	961,272	27%	35%	25%	70%	126%	Nebraska
30	925,784	26%	34%	25%	67%	125%	New York University
31	917,739	25%	33%	24%	67%	121%	North Carolina
32	904,757	25%	32%	24%	65%	119%	Northwestern
33	825,410	25%	31%	23%	65%	117%	Ohio State
34	813,181	24%	31%	22%	65%	113%	Pensylvania University
35	809,867	23%	31%	22%	63%	111%	Princeton
36	748,471	23%	30%	21%	62%	107%	Purdue
37	745,767	22%	30%	21%	61%	102%	Rochester
38	722,939	19%	25%	19%	61%	95%	Rutgers
39	721,119	18%	23%	18%	58%	95%	Stanford
40	690,399	15%	23%	17%	57%	91%	Texas University
41	535,262	14%	22%	5%	49%	87%	Virginia
42	518,647	12%	18%	-12%	45%	65%	Washington U., Mo.
							Univ. of Washington
							Wisconsin
							Yale

Table IIA

PERCENTAGE OF TOTAL EXPENDITURES DEVOTED TO "OTHER,"
1967 TO 1987, 38 COLLEGE LIBRARIES

#	Other $ as % of Total $ '66/67	Other $ as % of Total $ '76/77	Other $ as % of Total $ '86/87
1	24%	33%	31%
2	23%	24%	30%
3	19%	24%	29%
4	17%	23%	29%
5	17%	21%	27%
6	14%	21%	24%
7	13%	20%	23%
8	13%	20%	23%
9	13%	18%	22%
10	11%	18%	22%
11	11%	17%	21%
12	10%	16%	21%
13	9%	16%	21%
14	9%	16%	20%
15	9%	16%	20%
16	9%	15%	19%
17	8%	15%	19%
18	8%	14%	19%
19	8%	14%	19%
20	8%	14%	17%
21	7%	13%	16%
22	7%	12%	16%
23	7%	12%	14%
24	7%	12%	13%
25	6%	10%	13%
26	6%	9%	13%
27	5%	9%	12%
28	5%	9%	12%
29	4%	9%	11%
30	4%	9%	10%
31	4%	8%	10%
32	4%	8%	10%
33	4%	6%	9%
34	4%	6%	8%
35	4%	5%	7%
36	3%	4%	7%
37	2%	4%	7%
38	1%	2%	6%

Bowdoin List institutions included in Table IIA:

#		
	Amherst	Lawrence
	Antioch	Macalester
	Bates	Middlebury
	Beloit	Mount Holyoke
	Bowdoin	Oberlin
	Carleton	Occidental
	Colby	Randolph-Macon
	Colgate	Reed
	Connecticut	Smith
	Davidson	Swarthmore
	Dickinson	Trinity, Conn.
	Earlham	Union
	Franklin & Marshall	U. of the South
	Grinnell	Vassar
	Hamilton	Wabash
	Haverford	Washington & Lee
	Hollins	Wellesley
	Knox	Wesleyan
	Lafayette	Williams

Table IIB

PERCENTAGE OF TOTAL EXPENDITURES DEVOTED TO "OTHER,"
1961 TO 1987, 28 COLLEGE LIBRARIES

#	Other $ as % of Total $ '60/61	Other $ as % of Total $ '66/67	Other $ as % of Total $ '76/77	Other $ as % of Total $ '86/87
1	26%	24%	33%	31%
2	18%	19%	24%	30%
3	17%	17%	24%	29%
4	16%	17%	23%	29%
5	14%	14%	21%	24%
6	14%	13%	20%	23%
7	13%	13%	20%	23%
8	13%	13%	18%	22%
9	13%	11%	18%	21%
10	13%	10%	17%	21%
11	13%	9%	16%	20%
12	11%	9%	16%	20%
13	10%	9%	16%	19%
14	9%	8%	15%	19%
15	9%	8%	15%	17%
16	8%	8%	14%	16%
17	8%	8%	14%	16%
18	7%	7%	12%	14%
19	7%	7%	12%	13%
20	7%	7%	12%	12%
21	6%	6%	9%	12%
22	5%	5%	9%	11%
23	4%	5%	9%	10%
24	4%	4%	8%	10%
25	3%	4%	6%	9%
26	3%	4%	5%	7%
27	3%	4%	4%	7%
28	3%	4%	4%	6%

Bowdoin List institutions included in Table IIB:

#	Name of Institution	
	Amherst	Macalester
	Antioch	Middlebury
	Beloit	Mount Holyoke
	Bowdoin	Oberlin
	Carleton	Reed
	Colby	Smith
	Colgate	Swarthmore
	Davidson	Trinity, Conn.
	Dickinson	Union
	Grinnell	U. of the South
	Hamilton	Vassar
	Knox	Wellesley
	Lafayette	Wesleyan
	Lawrence	Williams

Table IIC

PERCENTAGE OF TOTAL EXPENDITURES DEVOTED TO "OTHER,"
1967 to 1987, 67 ARL LIBRARIES

(Data for Johns Hopkins, St. Louis, and Yale are not included.)

#	Other $ as % of Total $ '66/67	Other $ as % of Total $ '76/77	Other $ as % of Total $ '86/87	#	Other $ as % of Total $ '66/67	Other $ as % of Total $ '76/77	Other $ as % of Total $ '86/87
1	17%	23%	26%	35	6%	8%	13%
2	14%	18%	23%	36	6%	8%	13%
3	12%	16%	22%	37	6%	8%	13%
4	12%	16%	22%	38	6%	8%	13%
5	12%	15%	21%	39	6%	8%	12%
6	12%	15%	21%	40	6%	7%	12%
7	11%	14%	21%	41	6%	7%	12%
8	11%	13%	20%	42	5%	7%	12%
9	10%	12%	20%	43	5%	7%	12%
10	10%	12%	20%	44	5%	7%	12%
11	9%	11%	19%	45	5%	7%	11%
12	9%	11%	19%	46	5%	7%	11%
13	9%	11%	18%	47	5%	7%	11%
14	9%	11%	18%	48	5%	7%	11%
15	9%	10%	18%	49	5%	6%	11%
16	9%	10%	17%	50	5%	6%	11%
17	8%	10%	17%	51	5%	6%	11%
18	8%	10%	17%	52	4%	6%	10%
19	8%	10%	17%	53	4%	6%	10%
20	8%	10%	16%	54	4%	6%	10%
21	8%	10%	16%	55	4%	6%	10%
22	8%	10%	16%	56	4%	6%	10%
23	7%	9%	16%	57	4%	6%	10%
24	7%	9%	16%	58	4%	5%	9%
25	7%	9%	16%	59	4%	5%	9%
26	7%	9%	15%	60	3%	5%	9%
27	7%	9%	15%	61	3%	5%	8%
28	7%	9%	15%	62	3%	5%	8%
29	7%	9%	15%	63	3%	5%	7%
30	6%	9%	15%	64	3%	4%	7%
31	6%	8%	15%	65	3%	3%	6%
32	6%	8%	14%	66	2%	3%	6%
33	6%	8%	13%	67	2%	3%	6%
34	6%	8%	13%				

Table IIIA

SALARIES AND WAGES AS A PERCENTAGE OF TOTAL EXPENDITURES,
1967 TO 1987, 38 COLLEGE LIBRARIES

#	Sal $ as % of Total $ '66/67	Sal $ as % of Total $ '76/77	Sal $ as % of Total $ '86/87
1	72%	61%	61%
2	65%	61%	56%
3	65%	61%	56%
4	65%	59%	56%
5	64%	57%	56%
6	62%	56%	55%
7	62%	56%	53%
8	61%	55%	52%
9	61%	53%	51%
10	61%	52%	50%
11	60%	51%	49%
12	59%	51%	48%
13	57%	51%	46%
14	57%	50%	46%
15	57%	50%	46%
16	56%	49%	45%
17	56%	49%	45%
18	56%	48%	43%
19	56%	47%	43%
20	55%	47%	42%
21	55%	46%	42%
22	55%	46%	41%
23	54%	46%	40%
24	54%	45%	40%
25	53%	45%	40%
26	53%	44%	40%
27	53%	44%	39%
28	52%	44%	38%
29	50%	44%	38%
30	50%	43%	37%
31	49%	42%	36%
32	49%	42%	35%
33	47%	42%	33%
34	46%	40%	33%
35	44%	38%	32%
36	43%	34%	32%
37	37%	33%	32%
38	35%	31%	30%

Bowdoin List institutions included in Table IIIA:

#		
	Amherst	Lawrence
	Antioch	Macalester
	Bates	Middlebury
	Beloit	Mount Holyoke
	Bowdoin	Oberlin
	Carleton	Occidental
	Colby	Randolph-Macon
	Colgate	Reed
	Connecticut	Smith
	Davidson	Swarthmore
	Dickinson	Trinity, Conn.
	Earlham	Union
	Franklin & Marshall	U. of the South
	Grinnell	Vassar
	Hamilton	Wabash
	Haverford	Washington & Lee
	Hollins	Wellesley
	Knox	Wesleyan
	Lafayette	Williams

Table IIIB

SALARIES AND WAGES AS A PERCENTAGE OF TOTAL EXPENDITURES,
1961 TO 1987, 28 COLLEGE LIBRARIES

#	Sal $ as % of Total $ '60/61	Sal $ as % of Total $ '66/67	Sal $ as % of Total $ '76/77	Sal $ as % of Total $ '86/87
1	72%	65%	61%	56%
2	70%	64%	61%	56%
3	69%	62%	59%	56%
4	67%	62%	56%	55%
5	66%	61%	56%	52%
6	65%	61%	55%	50%
7	64%	61%	52%	49%
8	64%	60%	51%	48%
9	63%	57%	49%	46%
10	63%	57%	49%	46%
11	61%	57%	48%	46%
12	61%	56%	47%	45%
13	61%	56%	47%	45%
14	60%	56%	46%	43%
15	60%	55%	46%	43%
16	58%	55%	46%	42%
17	57%	54%	45%	41%
18	56%	54%	45%	40%
19	56%	53%	44%	40%
20	55%	50%	44%	40%
21	51%	50%	44%	38%
22	50%	49%	43%	37%
23	50%	47%	42%	36%
24	49%	46%	42%	33%
25	49%	44%	38%	33%
26	48%	43%	34%	32%
27	43%	37%	33%	32%
28	32%	35%	31%	32%

Bowdoin List institutions included in Table IIIB:

#		
	Amherst	Macalester
	Antioch	Middlebury
	Beloit	Mount Holyoke
	Bowdoin	Oberlin
	Carleton	Reed
	Colby	Smith
	Colgate	Swarthmore
	Davidson	Trinity, Conn.
	Dickinson	Union
	Grinnell	U. of the South
	Hamilton	Vassar
	Knox	Wellesley
	Lafayette	Wesleyan
	Lawrence	Williams

Table IIIC

SALARIES AND WAGES AS A PERCENTAGE OF TOTAL EXPENDITURES,
1967 TO 1987, 68 ARL LIBRARIES

(Data for St. Louis and Yale are not included.)

#	Sal $ as % of Total $ '66-67	Sal $ as % of Total $ '76-77	Sal $ as % of Total $ '86-87	#	Sal $ as % of Total $ '66-67	Sal $ as % of Total $ '76-77	Sal $ as % of Total $ '86-87
1	72%	97%	63%	35	55%	58%	51%
2	71%	71%	63%	36	55%	58%	51%
3	67%	70%	61%	37	55%	58%	50%
4	67%	70%	60%	38	55%	58%	50%
5	65%	69%	58%	39	54%	58%	50%
6	65%	68%	58%	40	54%	57%	50%
7	64%	67%	58%	41	54%	57%	50%
8	64%	66%	57%	42	53%	56%	49%
9	62%	65%	56%	43	53%	56%	49%
10	62%	65%	56%	44	53%	56%	49%
11	62%	65%	56%	45	53%	55%	48%
12	61%	65%	55%	46	53%	55%	47%
13	60%	65%	55%	47	53%	55%	47%
14	60%	64%	55%	48	53%	55%	47%
15	60%	64%	55%	49	52%	54%	47%
16	60%	64%	55%	50	52%	54%	47%
17	60%	64%	55%	51	52%	53%	47%
18	60%	63%	54%	52	51%	53%	47%
19	60%	63%	54%	53	51%	53%	47%
20	59%	62%	54%	54	51%	53%	47%
21	59%	62%	54%	55	50%	52%	46%
22	59%	61%	54%	56	49%	52%	46%
23	59%	61%	53%	57	49%	52%	46%
24	59%	60%	52%	58	48%	51%	45%
25	58%	60%	52%	59	48%	51%	45%
26	57%	60%	52%	60	47%	51%	45%
27	57%	60%	51%	61	47%	50%	45%
28	57%	59%	51%	62	47%	49%	45%
29	57%	59%	51%	63	46%	49%	45%
30	56%	59%	51%	64	46%	49%	44%
31	56%	59%	51%	65	42%	47%	44%
32	56%	59%	51%	66	41%	46%	44%
33	56%	59%	51%	67	41%	46%	43%
34	55%	58%	51%	68	32%	45%	43%

Table IIID NUMBER OF STAFF, 1967 TO 1987, 35 COLLEGE LIBRARIES

#	'66/67 # of Libns	'66/67 Total # of Staff	'76/77 # of Libns	'76/77 Total # of Staff	'86/87 # of Libns	'86/87 Total # of Staff
1	18.00	42.50	24.50	67.70	25.60	74.10
2	14.00	39.00	15.75	43.30	19.00	48.00
3	14.00	35.30	15.00	42.80	16.80	43.60
4	13.00	31.20	14.50	42.20	16.00	43.00
5	13.00	31.00	14.10	35.00	15.50	39.00
6	12.40	30.00	13.50	30.00	15.00	37.20
7	12.00	26.00	10.60	29.90	13.00	36.80
8	11.00	25.00	10.00	25.90	12.60	33.30
9	10.00	23.40	10.00	25.60	12.00	32.50
10	9.50	23.30	10.00	25.50	11.50	32.40
11	9.00	22.50	10.00	25.20	11.20	31.40
12	9.00	22.00	10.00	24.50	11.00	30.80
13	7.50	21.50	9.50	24.50	10.70	27.50
14	7.50	20.10	9.00	24.50	10.60	26.30
15	7.00	20.00	8.80	24.30	10.50	26.00
16	7.00	18.50	8.60	23.40	10.30	25.70
17	7.00	18.00	8.30	22.40	10.30	24.00
18	7.00	17.50	8.00	22.00	10.00	23.70
19	6.50	17.25	8.00	21.50	10.00	23.40
20	6.25	16.70	7.00	20.80	9.60	23.00
21	6.00	16.10	7.00	20.00	9.00	23.00
22	6.00	15.00	7.00	18.00	8.00	21.00
23	5.90	13.25	6.75	17.25	8.00	20.80
24	5.25	13.00	6.50	16.75	7.00	19.30
25	5.25	13.00	6.20	16.60	7.00	18.00
26	5.00	12.00	6.00	13.75	6.40	17.40
27	5.00	11.00	5.70	12.00	6.30	17.10
28	5.00	10.50	5.70	11.75	6.00	17.00
29	5.00	10.25	5.50	11.70	6.00	12.60
30	4.50	10.00	5.00	11.50	5.20	11.80
31	4.00	8.50	5.00	11.00	5.00	11.70
32	4.00	8.00	4.00	11.00	5.00	11.00
33	3.75	7.50	4.00	10.00	5.00	10.60
34	3.00	7.50	4.00	9.40	3.00	9.20
35	2.00	7.00	3.00	8.00	3.00	7.30

Bowdoin List institutions included in Table IIID:

#		#	
	Amherst		Macalester
	Bates		Middlebury
	Beloit		Mount Holyoke
	Bowdoin		Occidental
	Carleton		Randolph-Macon
	Colby		Reed
	Colgate		Smith
	Connecticut		Swarthmore
	Davidson		Trinity, Conn.
	Dickinson		Union
	Earlham		U. of the South
	Franklin & Marshall		Vassar
	Grinnell		Wabash
	Hamilton		Washington & Lee
	Haverford		Wellesley
	Hollins		Wesleyan
	Lafayette		Williams
	Lawrence		

Table IIIE PERCENTAGE INCREASES IN STAFF 1967 TO 1987, 35 COLLEGE LIBRARIES

#	Ordered Libn # % change '67-'77	Ordered Total # % change '67-'77	Ordered Libn # % change '77-'87	Ordered Total # % change '77-'87	Ordered Libn # % change '67-'87	Ordered Total # % change '67-'87
1	167%	187%	58%	73%	200%	212%
2	100%	100%	53%	59%	156%	177%
3	80%	99%	50%	57%	100%	156%
4	61%	72%	50%	49%	87%	145%
5	54%	60%	35%	39%	83%	114%
6	50%	59%	33%	33%	80%	112%
7	43%	43%	31%	29%	75%	94%
8	43%	40%	30%	26%	73%	74%
9	43%	38%	28%	24%	71%	71%
10	40%	38%	27%	23%	71%	70%
11	38%	36%	26%	23%	50%	56%
12	36%	35%	25%	18%	50%	50%
13	28%	30%	23%	17%	49%	48%
14	18%	28%	20%	15%	43%	42%
15	17%	25%	19%	15%	42%	42%
16	15%	22%	19%	14%	42%	41%
17	14%	22%	16%	14%	40%	36%
18	13%	20%	15%	9%	40%	25%
19	12%	15%	14%	9%	26%	19%
20	11%	13%	14%	9%	20%	19%
21	10%	12%	9%	8%	20%	18%
22	7%	12%	5%	6%	15%	15%
23	6%	10%	5%	6%	14%	12%
24	0%	8%	4%	5%	14%	11%
25	0%	6%	0%	2%	11%	10%
26	0%	6%	0%	1%	11%	8%
27	-4%	5%	0%	1%	0%	7%
28	-7%	-2%	0%	0%	0%	6%
29	-19%	-6%	0%	-2%	-1%	4%
30	-20%	-7%	0%	-2%	-7%	2%
31	-24%	-8%	-2%	-3%	-14%	-2%
32	-28%	-10%	-4%	-5%	-16%	-10%
33	-29%	-20%	-16%	-6%	-21%	-15%
34	-31%	-36%	-23%	-10%	-29%	-27%
35	-33%	-44%	-25%	-27%	-50%	-36%

Bowdoin List institutions included in Table IIIE:

#		
	Amherst	Macalester
	Bates	Middlebury
	Beloit	Mount Holyoke
	Bowdoin	Occidental
	Carleton	Randolph-Macon
	Colby	Reed
	Colgate	Smith
	Connecticut	Swarthmore
	Davidson	Trinity, Conn.
	Dickinson	Union
	Earlham	U. of the South
	Franklin & Marshall	Vassar
	Grinnell	Wabash
	Hamilton	Washington & Lee
	Haverford	Wellesley
	Hollins	Wesleyan
	Lafayette	Williams
	Lawrence	

Table IIIF NUMBER OF STAFF, 1967 TO 1987, 65 ARL LIBRARIES
(Data from Missouri, St. Louis, Syracuse, Washington U. (St. Louis), and Yale not included.)

#	'66/67 # of Libns	'66/67 Total # of Staff	'76/77 # of Libns	'76/77 Total # of Staff	'86/87 # of Libns	'86/87 Total # of Staff
1	225	736	220	845	327	1030
2	205	638	207	780	219	756
3	189	637	178	643	172	730
4	182	568	170	614	170	727
5	170	535	165	559	160	624
6	157	525	149	537	157	621
7	144	498	141	533	156	577
8	139	477	139	512	137	548
9	127	465	136	506	137	547
10	123	400	135	487	133	532
11	106	384	133	467	132	521
12	97	379	122	455	121	494
13	93	348	115	450	119	471
14	88	348	113	446	119	465
15	88	320	112	429	114	460
16	85	316	109	416	114	455
17	85	312	104	406	113	428
18	85	312	101	386	112	419
19	83	294	100	366	108	409
20	81	284	98	356	108	404
21	77	280	90	353	106	385
22	73	278	87	348	104	383
23	73	254	86	343	103	380
24	73	247	85	310	101	372
25	72	247	84	309	100	369
26	72	244	83	307	97	367
27	71	243	83	300	95	366
28	69	241	80	299	95	356
29	69	232	76	291	90	341
30	68	224	75	285	88	336
31	68	222	74	284	87	332
32	65	217	74	281	87	324
33	64	213	73	262	87	321
34	63	212	73	255	85	320
35	62	209	70	248	83	319
36	61	209	68	243	80	311
37	60	207	65	242	79	297
38	60	205	65	235	78	292
39	58	197	64	227	78	285
40	57	196	63	227	75	279
41	56	194	62	226	75	278
42	52	189	62	224	74	277
43	50	182	58	222	74	275
44	50	177	58	220	72	266
45	48	175	57	216	67	266
46	47	174	56	215	66	265
47	46	172	55	212	64	259
48	45	171	54	208	64	256
49	44	167	54	205	61	255
50	44	166	54	203	59	246
51	44	166	53	203	58	243
52	43	156	53	201	57	236
53	42	152	52	198	56	232
54	42	152	52	194	56	232
55	42	147	51	192	56	225
56	40	145	49	191	53	222
57	40	137	49	189	51	211
58	38	134	46	186	50	207
59	32	134	45	185	50	206
60	32	115	45	179	49	204
61	31	110	41	178	48	204
62	31	106	41	170	47	198
63	24	99	41	170	45	183
64	19	97	40	168	45	180
65	18	77	35	164	39	176

Table IIIG PERCENTAGE INCREASES IN STAFF 1967 TO 1987, 65 ARL LIBRARIES

(Data for Missouri, St. Louis, Syracuse, Washington (St. Louis), and Yale are not included.)

#	Ordered Libn # % change '67-77	Ordered Total # % change '67-'77	Ordered Libn # % change '77-87	Ordered Total # % change '77-'87	Ordered Libn # % change '67-87	Ordered Total # % change '67-'87
1	157%	149%	73%	90%	287%	270%
2	128%	133%	67%	82%	272%	205%
3	111%	110%	66%	68%	156%	195%
4	107%	94%	63%	58%	126%	185%
5	97%	92%	60%	54%	116%	122%
6	95%	87%	51%	50%	103%	116%
7	81%	86%	50%	48%	100%	113%
8	70%	84%	49%	43%	86%	106%
9	70%	80%	49%	36%	84%	106%
10	60%	66%	48%	35%	82%	104%
11	54%	62%	47%	35%	81%	88%
12	52%	55%	42%	33%	66%	85%
13	48%	55%	38%	31%	62%	82%
14	46%	46%	37%	28%	59%	80%
15	44%	45%	37%	28%	58%	77%
16	42%	45%	28%	28%	58%	73%
17	42%	45%	28%	28%	56%	72%
18	42%	44%	26%	26%	51%	68%
19	32%	44%	25%	25%	50%	67%
20	31%	43%	24%	24%	50%	65%
21	29%	39%	24%	24%	49%	64%
22	27%	36%	24%	23%	45%	63%
23	26%	36%	23%	22%	45%	57%
24	25%	34%	22%	22%	44%	56%
25	25%	34%	18%	22%	44%	56%
26	24%	33%	16%	20%	44%	53%
27	24%	29%	16%	18%	42%	48%
28	22%	28%	15%	18%	40%	44%
29	17%	23%	13%	15%	39%	44%
30	15%	23%	12%	15%	37%	42%
31	14%	22%	12%	14%	36%	40%
32	14%	22%	11%	14%	34%	38%
33	13%	19%	10%	14%	30%	37%
34	12%	18%	9%	13%	30%	36%
35	11%	18%	7%	13%	29%	36%
36	10%	17%	7%	11%	28%	32%
37	8%	17%	6%	10%	28%	32%
38	8%	17%	4%	10%	27%	31%
39	8%	17%	4%	10%	26%	31%
40	7%	16%	3%	9%	26%	31%
41	7%	16%	3%	9%	23%	30%
42	6%	15%	3%	8%	20%	29%
43	4%	15%	2%	8%	17%	28%
44	3%	15%	1%	7%	15%	24%
45	3%	14%	1%	6%	14%	24%
46	1%	13%	-1%	5%	12%	23%
47	1%	13%	-1%	4%	8%	22%
48	0%	10%	-1%	4%	8%	22%
49	0%	9%	-2%	4%	7%	22%
50	-2%	8%	-2%	3%	6%	21%
51	-4%	6%	-2%	1%	3%	19%
52	-5%	5%	-4%	1%	2%	18%
53	-6%	4%	-4%	0%	2%	17%
54	-6%	3%	-4%	-2%	1%	14%
55	-8%	2%	-6%	-2%	-2%	13%
56	-9%	-2%	-8%	-4%	-3%	9%
57	-9%	-4%	-9%	-5%	-5%	8%
58	-10%	-4%	-9%	-5%	-7%	7%
59	-11%	-4%	-9%	-7%	-7%	7%
60	-15%	-11%	-12%	-7%	-9%	0%
61	-19%	-12%	-12%	-8%	-17%	-4%
62	-24%	-16%	-15%	-10%	-21%	-4%
63	-24%	-17%	-32%	-11%	-27%	-4%
64	-28%	-17%	-34%	-15%	-28%	-14%
65	-36%	-37%	-38%	-15%	-33%	-21%

Table IVA

MATERIALS EXPENDITURES AS A PERCENTAGE OF TOTAL EXPENDITURES,
1967 TO 1987, 38 COLLEGE LIBRARIES

	Matls $ as % of Total $ '66/67	Matls $ as % of Total $ '76/77	Matls $ as % of Total $ '86/87
1	57%	54%	52%
2	55%	49%	51%
3	47%	46%	48%
4	46%	46%	48%
5	45%	45%	48%
6	44%	45%	48%
7	42%	44%	47%
8	41%	42%	47%
9	41%	42%	44%
10	40%	42%	43%
11	40%	42%	43%
12	39%	41%	43%
13	39%	41%	42%
14	39%	40%	42%
15	38%	40%	42%
16	38%	40%	41%
17	37%	40%	41%
18	36%	39%	39%
19	36%	38%	38%
20	35%	38%	38%
21	34%	38%	37%
22	34%	37%	37%
23	34%	36%	37%
24	33%	36%	37%
25	32%	35%	36%
26	32%	35%	36%
27	31%	35%	36%
28	31%	35%	36%
29	31%	35%	35%
30	30%	34%	35%
31	30%	33%	35%
32	30%	33%	33%
33	29%	33%	32%
34	29%	33%	31%
35	28%	32%	31%
36	28%	29%	29%
37	26%	23%	27%
38	25%	23%	27%

Bowdoin List institutions included in Table IVA:

Amherst	Lawrence
Antioch	Macalester
Bates	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Occidental
Colby	Randolph-Macon
Colgate	Reed
Connecticut	Smith
Davidson	Swarthmore
Dickinson	Trinity, Conn.
Earlham	Union
Franklin & Marshall	U. of the South
Grinnell	Vassar
Hamilton	Wabash
Haverford	Washington & Lee
Hollins	Wellesley
Knox	Wesleyan
Lafayette	Williams

Table IVB

MATERIALS EXPENDITURES AS A PERCENTAGE OF TOTAL EXPENDITURES,
1961 TO 1987, 28 COLLEGE LIBRARIES

	Matls $ as % of Total $ '60/61	Matls $ as % of Total $ '66/67	Matls $ as % of Total $ '76/77	Matls $ as % of Total $ '86/87
1	44%	57%	54%	51%
2	42%	55%	49%	48%
3	39%	47%	46%	48%
4	38%	46%	45%	48%
5	37%	45%	45%	47%
6	37%	44%	44%	44%
7	37%	41%	42%	43%
8	36%	41%	42%	43%
9	35%	40%	41%	43%
10	34%	38%	41%	42%
11	33%	37%	40%	41%
12	32%	36%	40%	41%
13	32%	36%	39%	39%
14	31%	35%	38%	38%
15	30%	34%	37%	38%
16	30%	34%	35%	37%
17	30%	34%	35%	37%
18	30%	33%	35%	37%
19	30%	32%	35%	36%
20	29%	31%	35%	36%
21	28%	31%	33%	36%
22	27%	30%	33%	35%
23	27%	30%	33%	35%
24	27%	30%	33%	35%
25	26%	29%	32%	33%
26	26%	28%	29%	31%
27	25%	28%	23%	27%
28	24%	26%	23%	27%

Bowdoin List institutions included in Table IVB:

Amherst	Macalester
Antioch	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Reed
Colby	Smith
Colgate	Swarthmore
Davidson	Trinity, Conn.
Dickinson	Union
Grinnell	U. of the South
Hamilton	Vassar
Knox	Wellesley
Lafayette	Wesleyan
Lawrence	Williams

Table IVC

MATERIALS EXPENDITURES AS A PERCENTAGE OF TOTAL EXPENDITURES, 1967 TO 1987, 68 ARL LIBRARIES

(Data for St. Louis and Yale are not included.)

#	Matls $ as % of Total $ '66/67	Matls $ as % of Total $ '76/77	Matls $ as % of Total $ '86/87	#	Matls $ as % of Total $ '66/67	Matls $ as % of Total $ '76/77	Matls $ as % of Total $ '86/87
1	66%	66%	49%	35	38%	32%	34%
2	56%	48%	47%	36	38%	32%	34%
3	54%	46%	47%	37	38%	32%	34%
4	50%	45%	46%	38	38%	32%	34%
5	49%	45%	46%	39	37%	32%	33%
6	48%	44%	44%	40	37%	32%	33%
7	47%	43%	44%	41	37%	32%	33%
8	46%	43%	44%	42	36%	31%	33%
9	46%	42%	43%	43	36%	31%	33%
10	45%	42%	42%	44	36%	31%	33%
11	45%	42%	42%	45	35%	31%	32%
12	45%	41%	41%	46	35%	30%	32%
13	44%	39%	41%	47	35%	30%	32%
14	44%	38%	40%	48	35%	30%	31%
15	44%	38%	38%	49	35%	29%	31%
16	42%	38%	38%	50	35%	29%	31%
17	42%	38%	38%	51	34%	29%	30%
18	41%	37%	38%	52	34%	29%	30%
19	41%	36%	38%	53	33%	29%	30%
20	41%	36%	38%	54	32%	28%	30%
21	40%	36%	37%	55	32%	28%	30%
22	40%	35%	37%	56	32%	28%	30%
23	40%	35%	36%	57	30%	28%	30%
24	40%	34%	36%	58	29%	28%	29%
25	40%	34%	36%	59	29%	27%	29%
26	40%	34%	36%	60	29%	27%	29%
27	40%	34%	36%	61	29%	27%	29%
28	39%	33%	36%	62	28%	25%	28%
29	39%	33%	35%	63	28%	24%	28%
30	39%	33%	35%	64	28%	24%	28%
31	39%	33%	35%	65	28%	24%	28%
32	39%	33%	35%	66	27%	24%	28%
33	39%	33%	35%	67	23%	22%	26%
34	39%	32%	34%	68	23%	20%	25%

Table IVD

PERCENTAGE INCREASES IN MATERIALS EXPENDITURES 1967 TO 1987,
38 COLLEGE LIBRARIES

#	% change ordered '67-77	% change ordered '77-87	% change ordered '67-87
1	766%	467%	2244%
2	340%	261%	1913%
3	323%	246%	1263%
4	313%	246%	1178%
5	269%	246%	981%
6	262%	218%	930%
7	255%	210%	877%
8	243%	207%	794%
9	223%	205%	754%
10	215%	191%	726%
11	211%	182%	711%
12	204%	179%	662%
13	200%	173%	653%
14	173%	171%	594%
15	170%	170%	571%
16	162%	162%	552%
17	162%	154%	537%
18	156%	152%	529%
19	155%	149%	520%
20	149%	147%	517%
21	143%	147%	515%
22	142%	145%	507%
23	123%	143%	489%
24	122%	137%	471%
25	117%	136%	446%
26	117%	136%	439%
27	107%	133%	420%
28	101%	118%	398%
29	91%	106%	382%
30	88%	106%	372%
31	84%	104%	362%
32	78%	103%	286%
33	65%	97%	277%
34	64%	90%	239%
35	62%	88%	232%
36	58%	87%	206%
37	13%	87%	149%
38	-14%	36%	53%

Bowdoin List institutions included in Table IVD:

Amherst	Lawrence
Antioch	Macalester
Bates	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Occidental
Colby	Randolph-Macon
Colgate	Reed
Connecticut	Smith
Davidson	Swarthmore
Dickinson	Trinity, Conn.
Earlham	Union
Franklin & Marshall	U. of the South
Grinnell	Vassar
Hamilton	Wabash
Haverford	Washington & Lee
Hollins	Wellesley
Knox	Wesleyan
Lafayette	Williams

Table IVE

PERCENTAGE INCREASES IN MATERIALS EXPENDITURES 1961 TO 1987,
33 COLLEGE LIBRARIES

#	% change ordered '61-67	% change ordered '67-77	% change ordered '77-87	% change ordered '61-87
1	528%	766%	467%	3288%
2	392%	323%	261%	3109%
3	252%	313%	246%	2908%
4	247%	269%	246%	2327%
5	196%	262%	246%	2121%
6	178%	255%	218%	2063%
7	176%	243%	207%	2057%
8	159%	223%	191%	2049%
9	158%	215%	182%	1828%
10	156%	211%	179%	1758%
11	152%	204%	173%	1525%
12	145%	200%	171%	1487%
13	142%	173%	162%	1484%
14	129%	170%	154%	1458%
15	123%	162%	152%	1451%
16	121%	162%	149%	1413%
17	119%	155%	147%	1399%
18	118%	143%	147%	1397%
19	109%	142%	145%	1301%
20	105%	138%	145%	1257%
21	101%	123%	143%	1103%
22	82%	122%	137%	1093%
23	81%	117%	136%	1051%
24	81%	117%	136%	1019%
25	74%	91%	118%	1019%
26	68%	88%	106%	900%
27	68%	84%	106%	897%
28	65%	78%	104%	761%
29	58%	65%	97%	727%
30	46%	62%	90%	652%
31	28%	58%	88%	592%
32	24%	13%	87%	589%
33	18%	-14%	36%	235%

Bowdoin List institutions included in Table IVE:

Amherst	Middlebury
Antioch	Mills
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Reed
Colby	Smith
Colgate	Swarthmore
Connecticut	Trinity, Conn.
Davidson	Union
Dickinson	U. of the South
Grinnell	Vassar
Hamilton	Wabash
Haverford	Washington & Lee
Knox	Wellesley
Lafayette	Wesleyan
Lawrence	Williams
Macalester	

Table IVF

PERCENTAGE INCREASES IN MATERIALS EXPENDITURES 1967 TO 1987,
68 ARL LIBRARIES

(Data for St. Louis and Yale are not included.)

#	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '67-87	#	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '67-87
1	394%	282%	1485%	35	103%	160%	395%
2	326%	280%	1152%	36	103%	159%	388%
3	302%	261%	1042%	37	102%	155%	387%
4	279%	249%	863%	38	101%	153%	382%
5	278%	231%	842%	39	92%	153%	373%
6	262%	221%	838%	40	91%	143%	372%
7	236%	212%	827%	41	89%	143%	366%
8	230%	209%	762%	42	88%	142%	365%
9	225%	204%	740%	43	87%	139%	355%
10	218%	203%	707%	44	83%	137%	353%
11	214%	198%	659%	45	80%	133%	341%
12	209%	192%	652%	46	79%	132%	336%
13	192%	190%	628%	47	77%	130%	329%
14	187%	187%	612%	48	77%	126%	328%
15	162%	187%	590%	49	65%	124%	326%
16	150%	186%	580%	50	64%	123%	323%
17	149%	185%	578%	51	64%	115%	321%
18	149%	185%	565%	52	62%	111%	321%
19	146%	185%	519%	53	61%	110%	319%
20	134%	181%	517%	54	60%	110%	318%
21	133%	179%	511%	55	60%	109%	316%
22	132%	177%	501%	56	58%	109%	300%
23	128%	176%	497%	57	54%	108%	292%
24	125%	175%	493%	58	53%	104%	289%
25	124%	173%	493%	59	53%	102%	257%
26	122%	172%	480%	60	50%	101%	221%
27	122%	168%	475%	61	50%	100%	207%
28	120%	165%	471%	62	47%	100%	188%
29	114%	164%	469%	63	44%	91%	176%
30	113%	163%	469%	64	36%	84%	170%
31	109%	163%	456%	65	30%	64%	143%
32	108%	163%	452%	66	22%	53%	140%
33	107%	161%	429%	67	15%	45%	138%
34	106%	161%	417%	68	-9%	25%	98%

Table VA

TOTAL EXPENDITURES, 1967 to 1987
38 COLLEGE LIBRARIES

#	Total Expend-itures '66/67	Total Expend-itures '76/77	Total Expend-itures '86/87
1	485,751	1,267,352	2,943,216
2	411,547	1,021,950	2,685,778
3	388,227	1,010,598	2,304,730
4	349,067	907,179	2,145,314
5	333,901	815,824	2,121,759
6	308,239	786,555	1,950,693
7	252,657	686,891	1,715,524
8	250,071	603,378	1,646,345
9	246,515	602,031	1,629,407
10	243,715	586,405	1,602,883
11	238,005	562,828	1,579,000
12	236,663	562,760	1,412,658
13	230,322	555,600	1,400,548
14	218,532	555,550	1,398,163
15	209,969	553,523	1,390,470
16	209,576	529,245	1,385,362
17	208,750	517,398	1,342,517
18	202,728	508,335	1,237,166
19	201,231	464,184	1,213,535
20	198,342	433,638	1,212,825
21	190,378	433,417	1,182,017
22	189,820	424,690	1,174,825
23	182,249	416,892	1,154,776
24	181,032	401,891	1,034,057
25	163,321	375,486	1,023,522
26	162,940	375,467	1,010,896
27	146,753	373,254	962,799
28	146,099	316,723	956,508
29	140,304	300,380	751,049
30	133,533	287,297	735,306
31	126,595	271,300	659,532
32	118,518	267,048	559,971
33	101,453	250,436	490,247
34	98,971	227,826	484,201
35	94,975	226,283	471,004
36	89,104	213,013	389,160
37	83,681	207,590	385,014
38	76,320	164,572	280,390

Bowdoin List institutions included in Table VA:

Amherst	Lawrence
Antioch	Macalester
Bates	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Occidental
Colby	Randolph-Macon
Colgate	Reed
Connecticut	Smith
Davidson	Swarthmore
Dickinson	Trinity, Conn.
Earlham	Union
Franklin & Marshall	U. of the South
Grinnell	Vassar
Hamilton	Wabash
Haverford	Washington & Lee
Hollins	Wellesley
Knox	Wesleyan
Lafayette	Williams

Table VB

PERCENTAGE INCREASES IN TOTAL EXPENDITURES 1967 TO 1987,
38 COLLEGE LIBRARIES

#	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '67-87
1	387%	269%	1288%
2	380%	241%	1043%
3	223%	227%	994%
4	222%	215%	909%
5	211%	210%	847%
6	208%	200%	804%
7	197%	185%	794%
8	196%	184%	691%
9	192%	178%	672%
10	189%	175%	615%
11	179%	173%	609%
12	176%	171%	558%
13	176%	171%	548%
14	166%	167%	543%
15	165%	166%	534%
16	160%	163%	533%
17	160%	163%	514%
18	151%	156%	508%
19	144%	155%	508%
20	141%	148%	503%
21	134%	138%	497%
22	130%	136%	496%
23	128%	134%	494%
24	125%	132%	461%
25	124%	131%	453%
26	123%	128%	443%
27	117%	127%	424%
28	110%	123%	392%
29	105%	118%	376%
30	103%	116%	361%
31	100%	111%	351%
32	97%	110%	310%
33	75%	108%	300%
34	73%	107%	267%
35	64%	101%	243%
36	48%	85%	225%
37	8%	81%	216%
38	5%	24%	34%

Bowdoin List institutions included in Table VB:

Amherst	Lawrence
Antioch	Macalester
Bates	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Occidental
Colby	Randolph-Macon
Colgate	Reed
Connecticut	Smith
Davidson	Swarthmore
Dickinson	Trinity, Conn.
Earlham	Union
Franklin & Marshall	U. of the South
Grinnell	Vassar
Hamilton	Wabash
Haverford	Washington & Lee
Hollins	Wellesley
Knox	Wesleyan
Lafayette	Williams

Table VC

TOTAL EXPENDITURES, 1961, AND PERCENTAGE INCREASES
IN TOTAL EXPENDITURES, 1961 TO 1987, 28 COLLEGE LIBRARIES

#	Total Expenditures '60/61	% increase ordered '61-67	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '61-87
1	276,163	301%	223%	269%	2078%
2	259,714	248%	222%	241%	2006%
3	226,952	161%	211%	227%	1774%
4	206,997	152%	208%	215%	1655%
5	185,276	141%	197%	210%	1647%
6	162,288	136%	196%	200%	1526%
7	135,166	126%	192%	184%	1513%
8	133,466	126%	189%	178%	1505%
9	110,458	122%	176%	175%	1437%
10	107,933	117%	166%	173%	1407%
11	107,074	110%	165%	167%	1390%
12	106,410	110%	160%	166%	1197%
13	105,500	104%	160%	163%	1165%
14	102,248	97%	151%	163%	1144%
15	99,346	97%	144%	156%	1102%
16	93,732	95%	141%	148%	1087%
17	86,934	95%	128%	134%	1083%
18	80,926	92%	124%	132%	1004%
19	80,015	90%	123%	131%	965%
20	79,220	85%	117%	128%	936%
21	75,123	83%	110%	123%	934%
22	71,140	81%	105%	116%	893%
23	65,777	80%	103%	111%	873%
24	61,900	76%	100%	108%	858%
25	60,720	62%	97%	101%	717%
26	60,000	61%	75%	85%	601%
27	51,155	34%	8%	81%	534%
28	47,470	25%	5%	24%	160%

Bowdoin List institutions included in Table VC:

Amherst	Macalester
Antioch	Middlebury
Beloit	Mount Holyoke
Bowdoin	Oberlin
Carleton	Reed
Colby	Smith
Colgate	Swarthmore
Davidson	Trinity, Conn.
Dickinson	Union
Grinnell	U. of the South
Hamilton	Vassar
Knox	Wellesley
Lafayette	Wesleyan
Lawrence	Williams

Table VD

TOTAL EXPENDITURES, 1967 to 1987, 68 ARL LIBRARIES

(Data for St. Louis and Yale are not included.)

#	1966/67	1976/77	1986/87	#	1966/67	1976/77	1986/87
1	7,543,791	13,307,617	34,792,739	35	1,759,381	4,158,606	10,519,089
2	5,254,659	13,138,396	29,428,949	36	1,756,534	4,088,720	10,397,545
3	5,151,905	10,738,914	26,998,169	37	1,729,949	3,908,615	10,197,931
4	4,962,401	10,667,128	25,852,247	38	1,717,687	3,860,375	9,868,092
5	4,429,988	10,156,753	20,374,225	39	1,682,765	3,817,863	9,829,382
6	4,295,184	8,986,374	20,008,645	40	1,678,190	3,808,244	9,352,679
7	4,069,779	8,893,212	18,851,310	41	1,667,500	3,804,198	9,292,380
8	3,980,862	8,685,810	17,881,544	42	1,652,572	3,748,569	9,149,465
9	3,761,861	8,657,899	17,517,507	43	1,583,187	3,729,711	9,022,614
10	3,472,327	8,616,867	17,253,886	44	1,566,447	3,709,067	8,990,001
11	3,360,780	7,515,127	16,258,070	45	1,555,745	3,553,503	8,793,639
12	3,212,500	7,369,707	16,041,230	46	1,553,422	3,480,790	8,701,223
13	3,094,069	7,292,344	15,664,381	47	1,546,379	3,443,428	8,588,061
14	2,967,222	7,106,267	15,397,844	48	1,443,900	3,395,003	8,282,161
15	2,947,864	6,982,540	15,346,678	49	1,363,201	3,361,455	8,225,474
16	2,933,370	6,866,168	14,895,629	50	1,323,002	3,312,551	8,095,082
17	2,865,141	6,661,422	13,978,558	51	1,314,158	3,309,771	7,772,439
18	2,799,073	6,406,850	13,967,683	52	1,300,013	3,295,635	7,677,311
19	2,769,117	6,251,574	13,762,225	53	1,294,030	3,266,565	7,350,599
20	2,531,878	5,787,897	13,424,913	54	1,282,984	3,245,985	7,181,127
21	2,274,167	5,709,339	13,258,591	55	1,247,623	3,204,000	7,158,730
22	2,229,073	5,449,523	12,935,746	56	1,213,743	3,127,059	7,128,893
23	2,175,908	5,320,168	12,685,658	57	1,198,107	3,097,875	6,814,662
24	2,164,884	5,260,806	12,599,830	58	1,145,503	3,075,407	6,773,071
25	2,151,680	5,175,876	11,893,424	59	1,135,429	3,008,830	6,657,342
26	2,147,623	5,135,184	11,807,837	60	1,105,723	2,967,465	6,552,253
27	2,116,572	4,839,104	11,398,777	61	1,092,902	2,909,313	6,449,772
28	2,088,844	4,810,935	11,162,154	62	1,007,477	2,883,308	6,441,179
29	2,036,364	4,649,261	10,982,859	63	996,503	2,552,233	6,429,384
30	1,936,782	4,594,667	10,952,533	64	909,542	2,472,489	6,408,666
31	1,915,514	4,504,497	10,934,347	65	861,021	2,407,427	6,234,615
32	1,889,659	4,341,575	10,831,473	66	729,518	2,145,940	5,909,115
33	1,853,301	4,339,132	10,650,409	67	680,053	2,022,444	5,745,844
34	1,794,644	4,190,639	10,609,060	68	534,581	1,123,101	5,244,022

Table VE

PERCENTAGE INCREASES IN TOTAL EXPENDITURES 1967 TO 1987,
68 ARL LIBRARIES

(Data for St. Louis and Yale are not included.)

#	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '67-87	#	% increase ordered '67-77	% increase ordered '77-87	% increase ordered '67-87
1	463%	455%	1612%	35	134%	140%	454%
2	394%	242%	1447%	36	130%	137%	444%
3	342%	213%	1137%	37	127%	137%	437%
4	329%	205%	902%	38	125%	136%	434%
5	291%	204%	799%	39	122%	132%	431%
6	282%	203%	792%	40	121%	131%	430%
7	270%	202%	744%	41	119%	131%	429%
8	229%	200%	729%	42	118%	127%	411%
9	214%	191%	717%	43	117%	125%	402%
10	204%	189%	707%	44	116%	125%	394%
11	201%	187%	649%	45	115%	124%	393%
12	199%	181%	617%	46	114%	124%	391%
13	198%	174%	585%	47	107%	122%	390%
14	197%	171%	585%	48	107%	121%	377%
15	183%	169%	572%	49	101%	118%	367%
16	183%	166%	560%	50	100%	118%	366%
17	175%	166%	554%	51	98%	118%	361%
18	170%	161%	549%	52	97%	113%	358%
19	169%	159%	544%	53	96%	111%	356%
20	168%	159%	542%	54	95%	108%	356%
21	164%	156%	540%	55	92%	108%	332%
22	163%	155%	535%	56	87%	105%	332%
23	158%	153%	523%	57	79%	98%	330%
24	156%	153%	513%	58	79%	96%	326%
25	155%	153%	507%	59	77%	87%	314%
26	154%	152%	503%	60	76%	87%	288%
27	153%	151%	501%	61	76%	83%	272%
28	151%	150%	500%	62	74%	71%	271%
29	150%	149%	500%	63	70%	71%	270%
30	150%	148%	477%	64	67%	70%	252%
31	141%	148%	476%	65	50%	66%	244%
32	138%	146%	461%	66	49%	55%	234%
33	137%	144%	458%	67	36%	49%	198%
34	136%	143%	456%	68	23%	38%	183%

Appendix E

The ARL Institutions in 1966/67

1 Alabama
2 Arizona
3 Boston U.
4 British Columbia
5 Brown
6 California/Berkeley
7 California/Los Angeles
8 Chicago
9 Cincinnati
10 Colorado
11 Columbia
12 Connecticut
13 Cornell
14 Duke
15 Florida State
16 Florida University
17 Georgetown
18 Georgia
19 Harvard
20 Illinois
21 Indiana
22 Iowa State
23 Iowa University
24 Johns Hopkins
25 Joint University
26 Kansas
27 Kentucky
28 Louisiana State
29 Maryland
30 M.I.T.
31 McGill
32 Michigan State
33 Michigan University
34 Minnesota
35 Missouri
36 Nebraska
37 New York Buffalo
38 New York University
39 North Carolina
40 Northwestern
41 Notre Dame
42 Ohio State
43 Oklahoma University
44 Oregon
45 Pennsylvania State
46 Pensylvania University
47 Pittsburgh
48 Princeton
49 Purdue
50 Rochester
51 Rutgers
52 St. Louis University
53 Southern California
54 Southern Illinois
55 Stanford
56 Syracuse
57 Temple
58 Tennessee
59 Texas A&M
60 Texas University
61 Toronto
62 Tulane
63 Utah
64 Virginia
65 Washington State
66 Washington U.Mo.
67 University Washington
68 Wayne State
69 Wisconsin
70 Yale

Appendix F

From D. Kent Halstead, Inflation Measures for Schools and Colleges (Washington, D.C., 1983), pp. 50-51:

... The HEPI is concerned with price changes involving the salaries of faculty, administrators, and other professional personnel, nonprofessional salaries and wages, various services, supplies and materials, equipment, books and periodicals, and utilities--all of which represent goods and services purchased by colleges and universities making current fund expenditures for educational and general purposes.

Educational and general operations are classified in the following functional categories: instruction and departmental research, extension and public service, educational programs such as workshops and instructional institutes supported by sponsors outside the institution, student services, general administration and general institutional expenses, staff benefits, libraries, operation and maintenance of physical plant, and organized activities of educational departments designed primarily to provide instructional or laboratory training of students. Sponsored research and other separately budgeted research, although part of educational and general operations, is excluded from the index compilation and priced separately by a Research and Development Price Index (R&DPI). The goods and services priced by the HEPI represent those that are purchased to perform all of the above functions.

The Higher Education Price Index is a weighted aggregative index number with "fixed," or "constant," weights, often referred to as a "market basket" index. The HEPI measures price change by repricing each year and comparing the aggregate costs of the goods and services bought by colleges and universities in a selected base period. The quantities of these goods and services have been kept constant based on the 1971-72 buying pattern of colleges and universities. (Prior to 1967 the index weighting is based on the 1964-65 expenditure pattern of institutions.) The quantities represent not only annual consumption of the specific sample items actually priced by the index, but also consumption of related items for which prices are not obtained, so that the total cost of the market basket represents total institutional spending for goods and services.